

**EMERGENCY ACTION PLAN (EAP)
FOR
UPPER & LOWER COLD SPRING, AND FOUNDRY BROOK DAMS**

**VILLAGE OF COLD SPRING
PUTNAM COUNTY
NEW YORK**

NYSDEC Dam ID#:

(Upper): 213-1004A

(Lower): 213-1004B

(Foundry Brook): 213-0506

Dam Location (lat / long):

(Upper): N 41°28'04" / W 73°56'24"

(Lower): N 41°27'54" / W 73°56'20"

(Foundry Brook): N 41°26'20" / W 73°56'00"

Owner/Operator:

Village of Cold Spring

Water & Wastewater Department - Superintendent

PREPARED BY:

**TECTONIC ENGINEERING, CONSULTANTS, GEOLOGISTS, & LAND SURVEYORS, D.P.C.
70 PLEASANT HILL ROAD - PO BOX 37
MOUNTAINVILLE, NEW YORK 10953**

MAY 2010

UPDATE: JULY 2012

UPDATE: NOVEMBER 2012

UPDATE: MARCH 2013

UPDATE: JULY 2023



New York State Professional Engineer #091164



TABLE OF CONTENTS

1.0	EMERGENCY NOTIFICATION	2
1.1	Emergency Notification Flowchart.....	2
1.2	Notification Information.....	4
2.0	STATEMENT OF PURPOSE	5
2.1	Purpose	5
2.2	Scope	5
3.0	SITE DESCRIPTIONS.....	5
3.1	Upper Cold Spring Dam Description	6
3.2	Lower Cold Spring Dam Description	7
3.3	Foundry Brook Dam Description	8
3.4	Site Drawings	11
4.0	EMERGENCY DETECTION, EVALUATION, AND CLASSIFICATION	18
4.1	Advisory Condition	18
4.2	Warning Condition	18
4.3	Emergency Condition	19
5.0	GENERAL RESPONSIBILITIES UNDER THE EAP	21
5.1	Dam Owner / Operator Responsibilities.....	21
5.2	EAP Coordinator Responsibilities	21
5.3	Village Of Cold Spring Police Responsibilites.....	22
5.4	Putnam County EMO Responsibilities	22
5.5	NYSEMO Responsibilities.....	22
5.6	NYSDEC-DSS Responsibilities.....	23
5.7	Responsibilities for Termination	23
5.8	Responsibilities for Recovery.....	23
6.0	PREPAREDNESS.....	24
6.1	Emergency Notification Directory.....	24
6.2	EOC Location Map	26
6.3	Preparedness Actions	28
6.4	Surveillance Checklist	29
6.5	List of Contractors	30
6.6	Available On-Site Material.....	31
6.7	Available On-Site Equipment	31
6.8	Available Off-Site Material.....	31
6.9	Available Off-Site Equipment	31
7.0	INUNDATION MAPS	32
7.1	Hydrologic And Hydraulic Analysis	32
7.2	Inundation Maps.....	38
ACRONYMS		45

APPENDICES

Appendix A.....	Plans for Training, Excercising, Updating, and Posting
Appendix B.....	Blank Surveillance Checklist and Dam Post-Incident Report
Appendix C	Approval and Distribution of the EAP

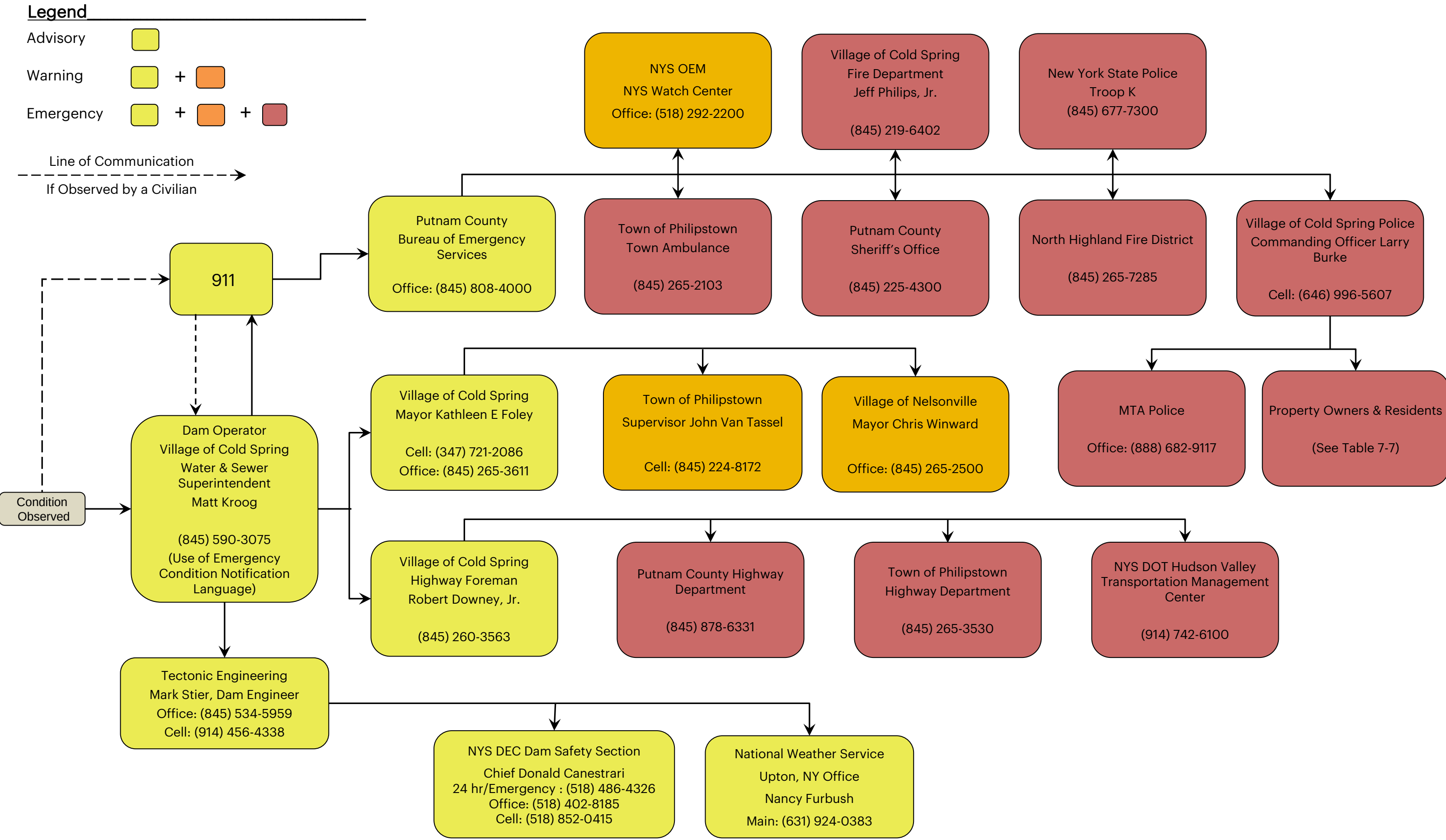
1.0 EMERGENCY NOTIFICATION

IMPORTANT - If you cannot contact an organization or individual promptly, proceed to the next contact on the Notification Flowchart. Try to re-contact the unavailable or busy number after you have contacted all others.

1.1 EMERGENCY NOTIFICATION FLOWCHART

See following pages for Emergency Notification Flow Chart

FIGURE 1 – NOTIFICATION FLOWCHART – COLD SPRING DAMS



1.2 NOTIFICATION INFORMATION

Dam emergency information for the three (3) existing or potential emergency conditions (Advisory / Warning / Emergency):

Name of person reporting the emergency: _____

Affiliation: _____

Phone Number: _____

Dam Name: Cold Spring

NYS-DEC I.D #: 213-1004A, 213-1004B, and 213-0506

Location of dam

County: Putnam

Municipality: Town of Philipstown

Stream: Foundry Brook

Road(s): See section 3.0 site descriptions

Time and date of dam emergency: _____

Type of emergency: _____

* Phone appropriate parties using the following example as a format: *(refer to the Emergency Notifications Flow Chart, page 3)*

"This is *(your name, title & affiliation)*.

There is a Dam *(Advisory, Warning, or Emergency)* **condition at** *(name of dam)*.

Observation was at *(time)*.

The situation is *(explain the condition from the Classification table on Page 11 and refer to the Site Descriptions, pages 6, 7, or 8, for directions to the dam)"*

2.0 STATEMENT OF PURPOSE

2.1 PURPOSE

To establish procedures necessary to protect life and property in areas affected by the failure of Upper or Lower Cold Spring Dams or Foundry Brook Dam or the uncontrolled release of impounded water from any of these dams. This EAP also serves as a mechanism to provide warning during non-failure but unusual conditions, such as high water events.

2.2 SCOPE

This Emergency Action Plan:

1. Identifies a routine monitoring system which can activate the plan.
2. Identifies the officials, organizations, agencies, and their respective responsibilities for implementing the plan.
3. Identifies those areas, residences, facilities and roads which might be affected by a dam failure.

3.0 SITE DESCRIPTIONS

The following pages describe the three (3) separate dams covered under this EAP, comprised of Upper Cold Spring Dam, Lower Cold Spring Dam, and Foundry Brook Dam.

3.1 UPPER COLD SPRING DAM DESCRIPTION

Dam Name: Cold Spring Hazard Classification: C
NYSDEC-ID #: 21301004A Federal Id (NID): NY 106
City/Town: Philipstown County: Putnam
Location & Access (See Map on page 11): Approximately 1.5 miles west of Fishkill Road (Putnam Co. Rt. 10) along Lake Surprise Rd. to Foundry Pond Rd, to Faust Ct.
Lot No: _____ Block No: _____
Latitude: 41° 28' 4"N Longitude: 73° 56' 24" W
River/Stream: Foundry Brook
Quad Sheet: West Point Nearest City/Town: Village of Cold Spring
Height (ft): 22 Normal Surface (ac): 9.2
Length (ft): 270 Normal Capacity (ac-ft): 61
Dam Type: Laid up stone and concrete cap Maximum Capacity (ac-ft): 88
Spillway: 649.7 Spillway Capacity (cfs): 247
Dike: 651.9 Drainage Area (sqr mls): 0.76
Outlet other than spillway: 12" diameter low level outlet pipe, 125' overtopping Section at El =649.7±.
Purpose/Operation of Dam: This dam was originally constructed to impound water for the West Point Foundry. It was purchased by the Village of Cold Spring in about 1925 to provide an additional water supply. It continues to be used for this purpose.
Instrumentation (if any): None
Significant upstream or downstream dams (if any): Downstream: Lower Cold Spring Dam
Overview of Inundation Area: Mostly wooded, with some residential and commercial properties, plus Town, County and State roads
Method of emergency drawdown: Lower level outlet pipe

3.2 LOWER COLD SPRING DAM DESCRIPTION

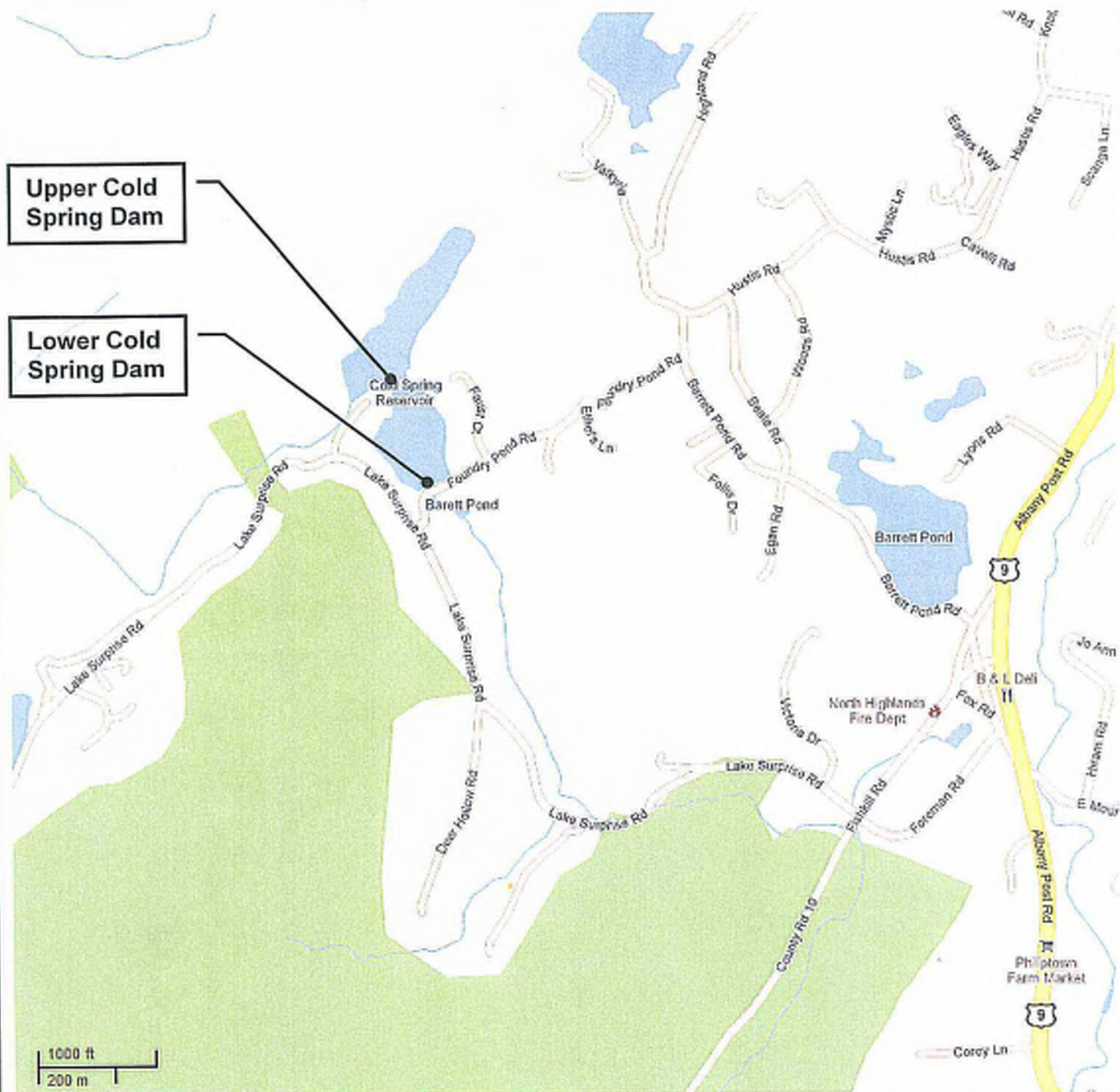
Dam Name: Cold Spring Hazard Classification: C
NYSDEC-ID #: 213-1004B Federal Id (NID): NY 107
City/Town: Philipstown County: Putnam
Location & Access: (see map on page 11): Approximately 1.2 miles west of Fishkill
(Putnam Co. Rt. 10) to Fishkill Pond Rd.
Lot No: _____ Block No: _____
Latitude: 41° 27' 54" N Longitude: 73° 56' 20" W
River/Stream: Foundry Brook
Quad Sheet: West Point Nearest City/Town: Village of Cold Spring
Height (ft): 22 Normal Surface (ac): 9
Length (ft): 330 Normal Capacity (ac-ft): 54
Dam Type: Laid up stone and concrete cap Maximum Capacity (ac-ft): 70
Spillway: 633.5 Spillway Capacity (cfs): 365
Dike: 636.0 Drainage Area (sqr mls): 0.05
Outlet other than spillway: 13" low level outlet diameter pipe
Purpose/Operation of Dam (attach additional sheets if necessary): This dam was
originally constructed to impound water for the West Point Foundry. It was purchased by
the Village of Cold Spring in about 1925 to provide an additional water supply. It
continues to be used for this purpose .
Instrumentation: None
Significant upstream or downstream dams (if any): Upstream Upper Cold Spring Dam

Overview of Inundation Area: Mostly wooded, with some residential and commercial
properties, plus Town, County and State roads.
Method of emergency drawdown: Outlet pipe

3.3 FOUNDRY BROOK DAM DESCRIPTION

Dam Name: Foundry Brook Hazard Classification: A
NYSDEC-ID #: 213-0506 Federal Id (NID): NY 13535
City/Town: Philipstown County: Putnam
Location & Access (see map on page 12): Off of Fishkill Rd. approximately one mile north of Route 301
Lot No: _____ Block No: _____
Latitude: 41° 26' 20" N Longitude: 73° 56' 0" W
River/Stream: Foundry Brook
Quad Sheet: West Point Nearest City/Town: Village of Cold Spring
Height (ft): 25 Normal Surface (ac): _____
Length (ft): 130 Normal Capacity (ac-ft): _____
Dam Type: Cast-in-place concrete Maximum Capacity (ac-ft): _____
Spillway: _____ Spillway Capacity (cfs): _____
Dike: _____ Drainage Area (sq. mls): 1.73
Outlet other than spillway: 14" low level diameter pipe
Purpose/Operation of Dam: Water Supply

Instrumentation (if any): None
Significant upstream or downstream dams : Upstream Upper and Lower Cold Spring Dam
Overview of Inundation Area: Mostly wooded, with some residential and commercial properties, plus Town, County and State roads.
Method of emergency drawdown: low level outlet pipe



APPROXIMATE SITE LOCATION INDICATED ON THE MAP IN PUTNAM COUNTY

FIGURE 1



**EMERGENCY ACTION PLAN
UPPER & LOWER COLD SPRING
& FOUNDRY BROOK DAMS
PUTNAM COUNTY
NEW YORK**

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants, P.C.
PO Box 37, 70 Pleasant Hill Road
Mountainville, NY 10953

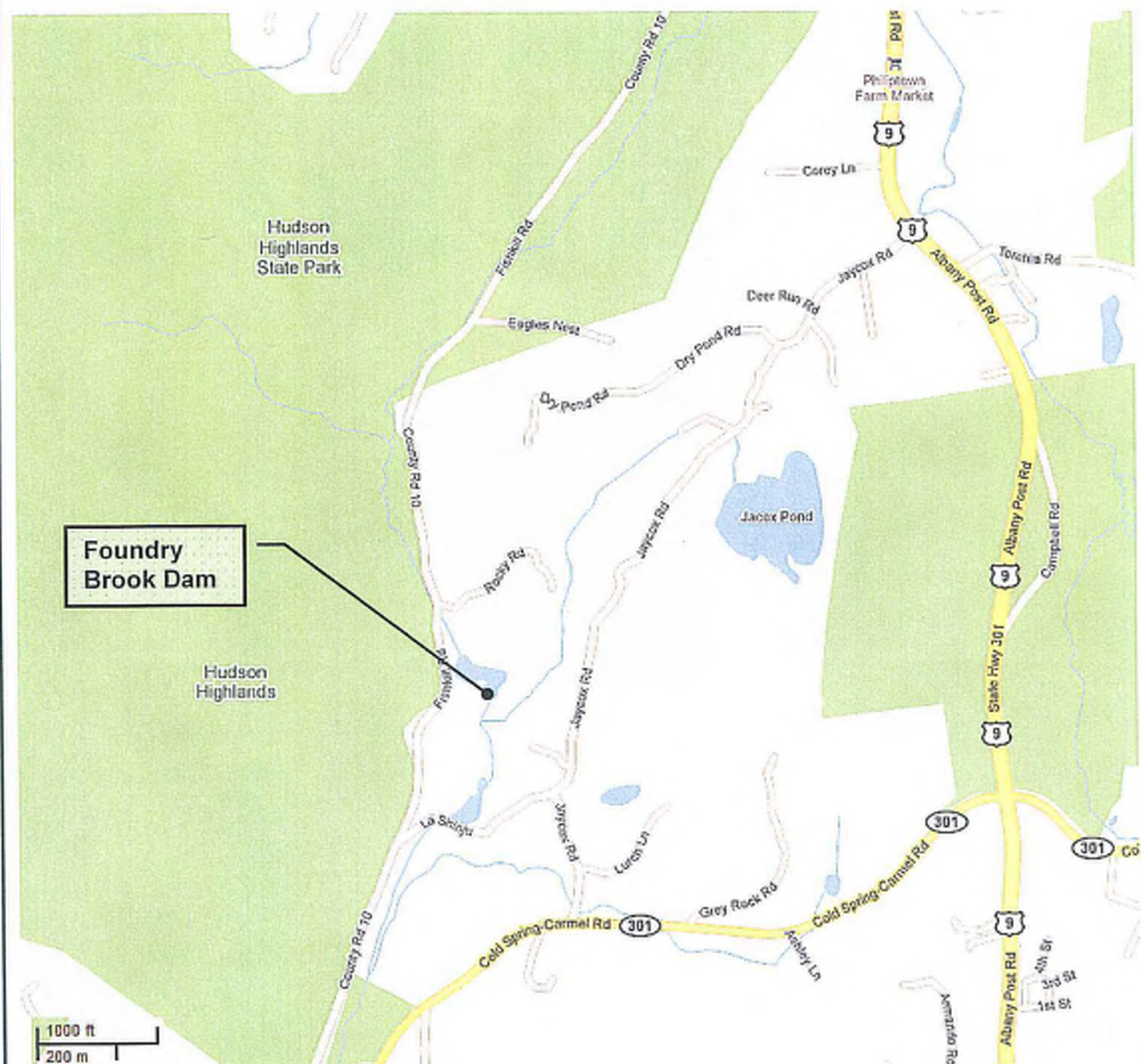
T: (845) 534-5959
F: (845) 534-5999
www.tectonicengineering.com

SCALE
NTS

DATE
5/21/10

DRAWN BY
LJG

WORK ORDER
5433.01



APPROXIMATE SITE LOCATION INDICATED ON
THE MAP IN PUTNAM COUNTY

FIGURE 2



**EMERGENCY ACTION PLAN
UPPER & LOWER COLD SPRING
& FOUNDRY BROOK DAMS
PUTNAM COUNTY
NEW YORK**

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants, P.C.
PO Box 37, 70 Pleasant Hill Road
Mountainville, NY 10953

T: (845) 534-5959
F: (845) 534-5999
www.tectonicengineering.com

SCALE
NTS

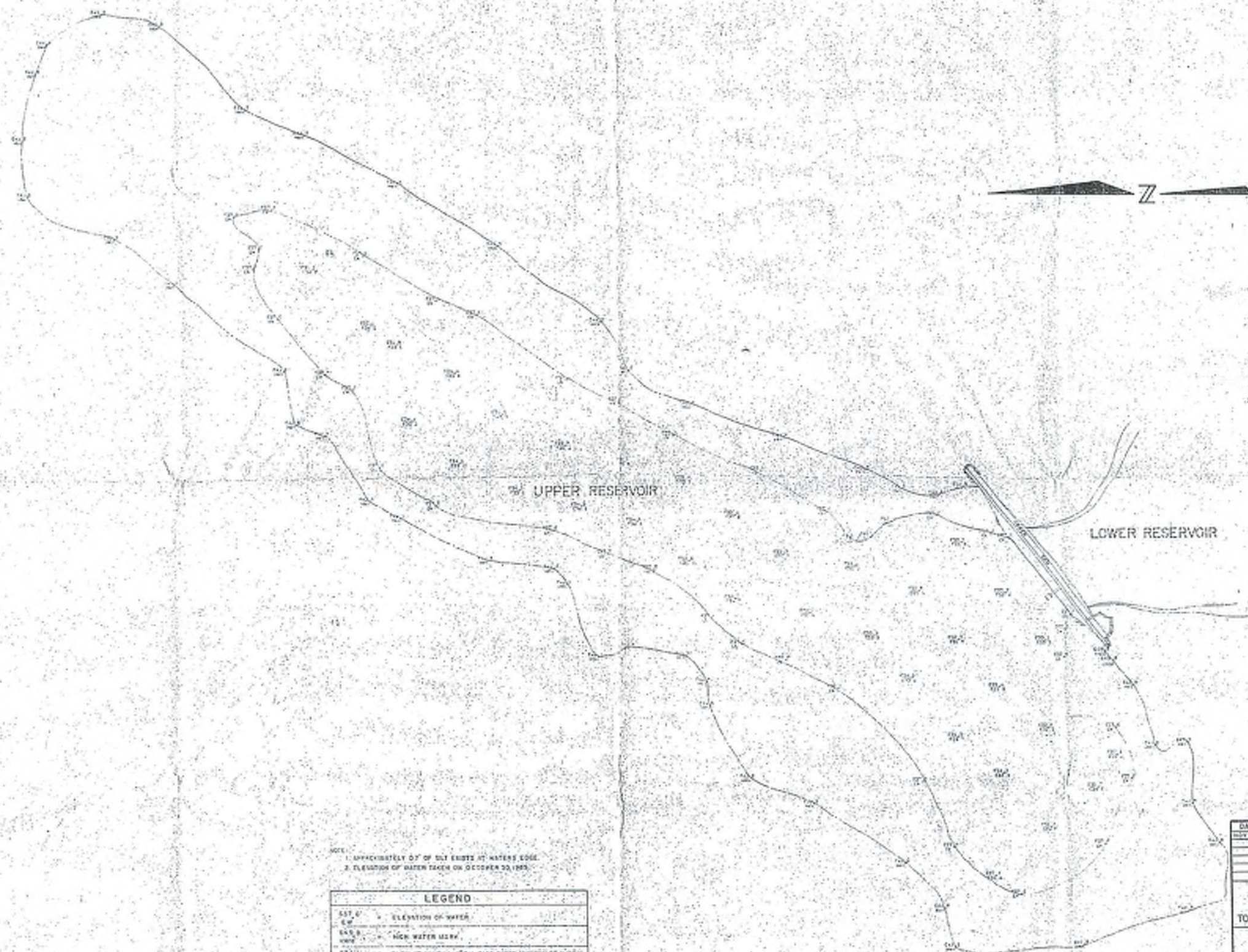
DATE
5/21/10

DRAWN BY
LJG

WORK ORDER
5433.01

3.4 SITE DRAWINGS

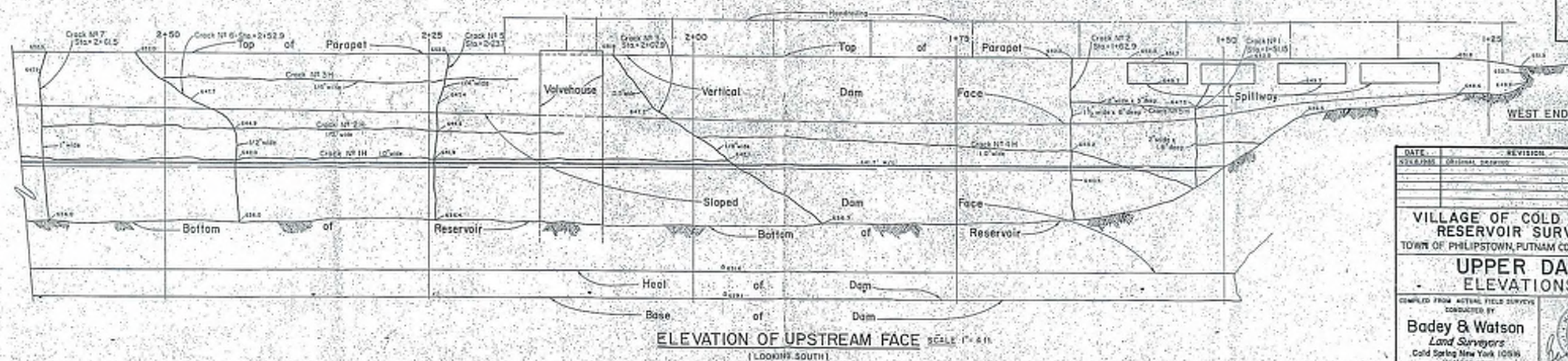
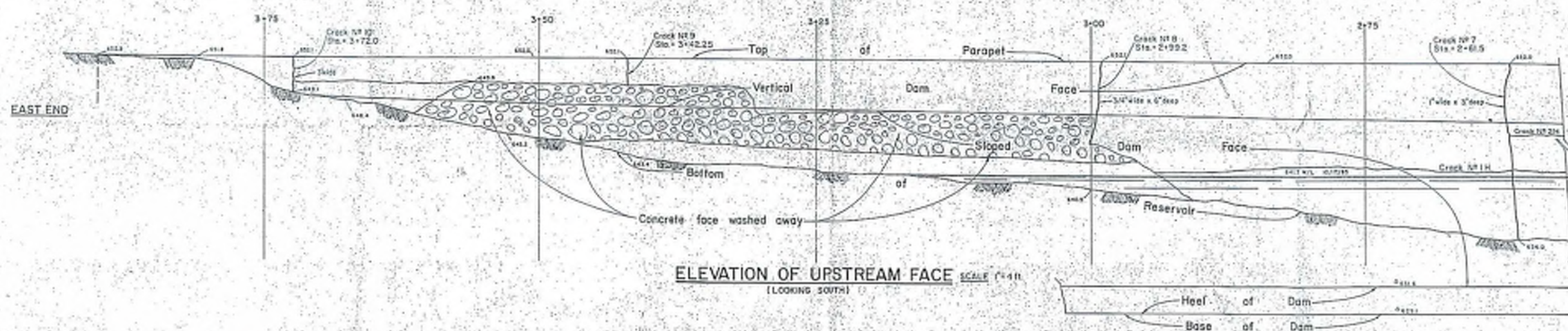
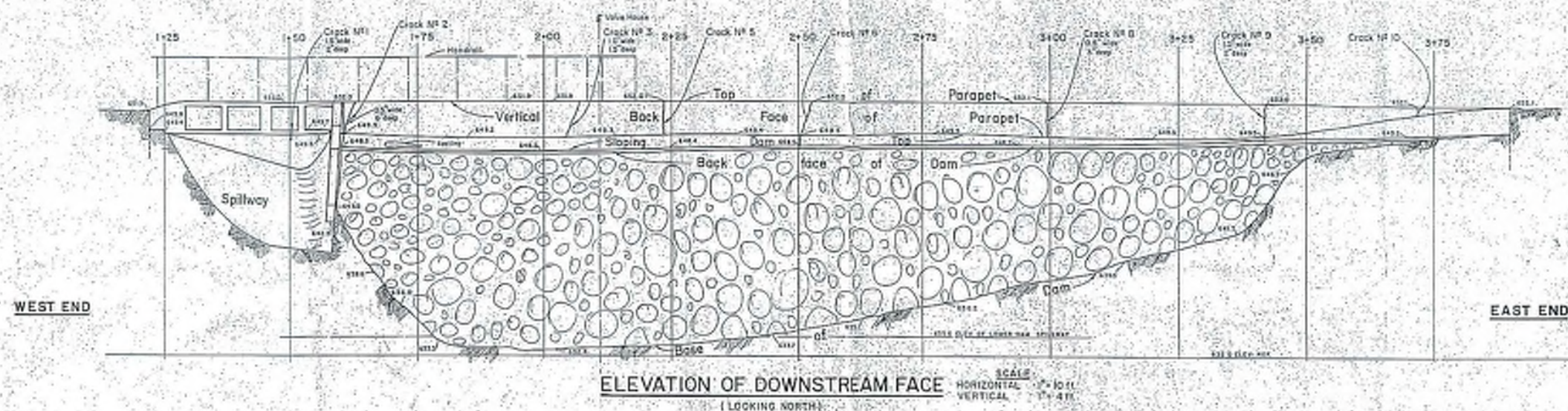
Site drawings for Upper and Lower Cold Spring Dam are included on the following six (6) pages. Note: The drawings for Upper Cold Spring Dam were prepared prior to work performed in 1986, which included the lowering of 125 feet of parapet wall to create an auxiliary overflow section. No drawings other than recent field sketches, which are not included in the EAP, are available for Foundry Brook Dam.

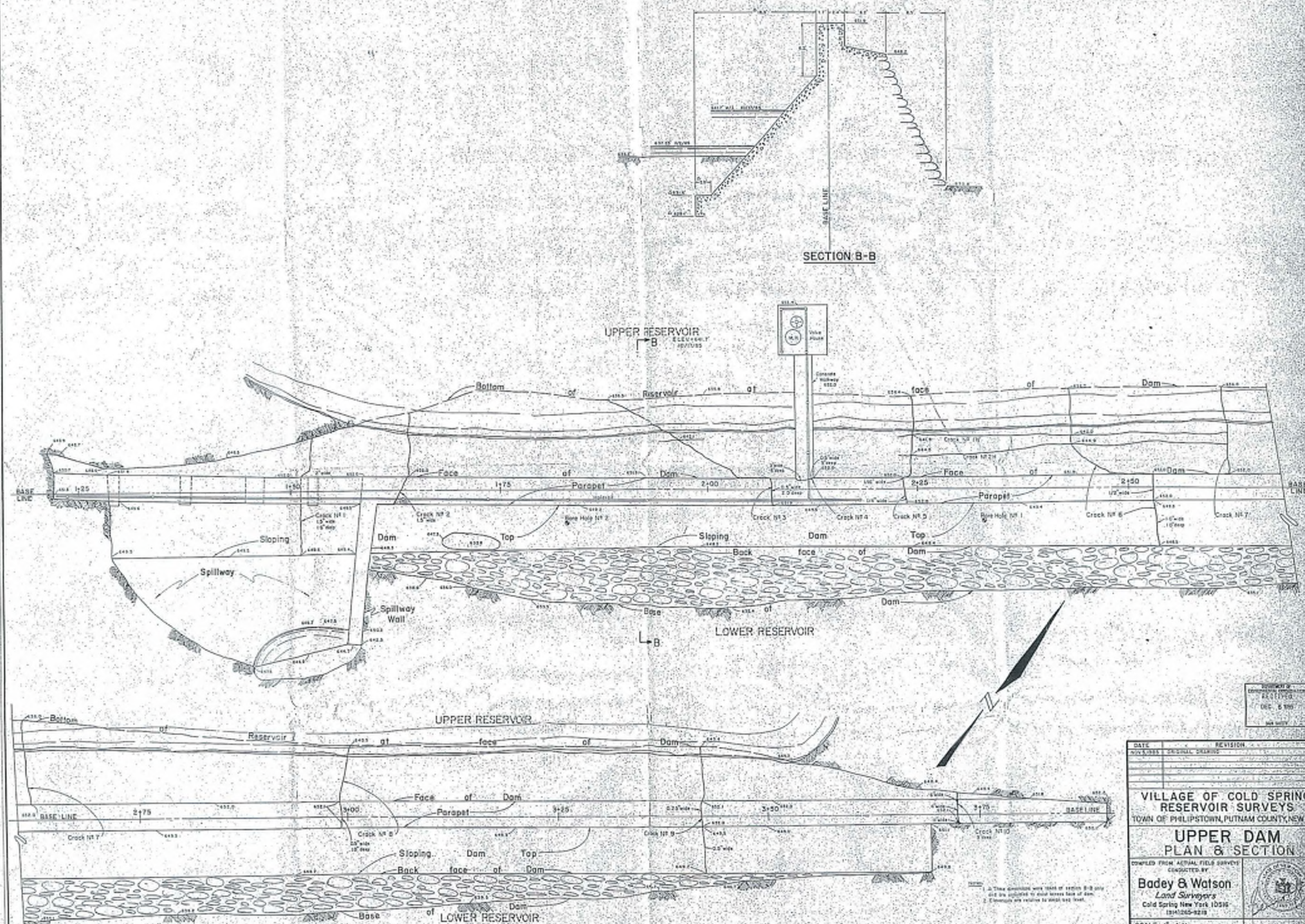


NOTE:
1. APPROXIMATELY 57" OF SILT EXISTS AT WATER'S EDGE.
2. ELEVATION OF WATER TAKEN ON OCTOBER 30, 1983.

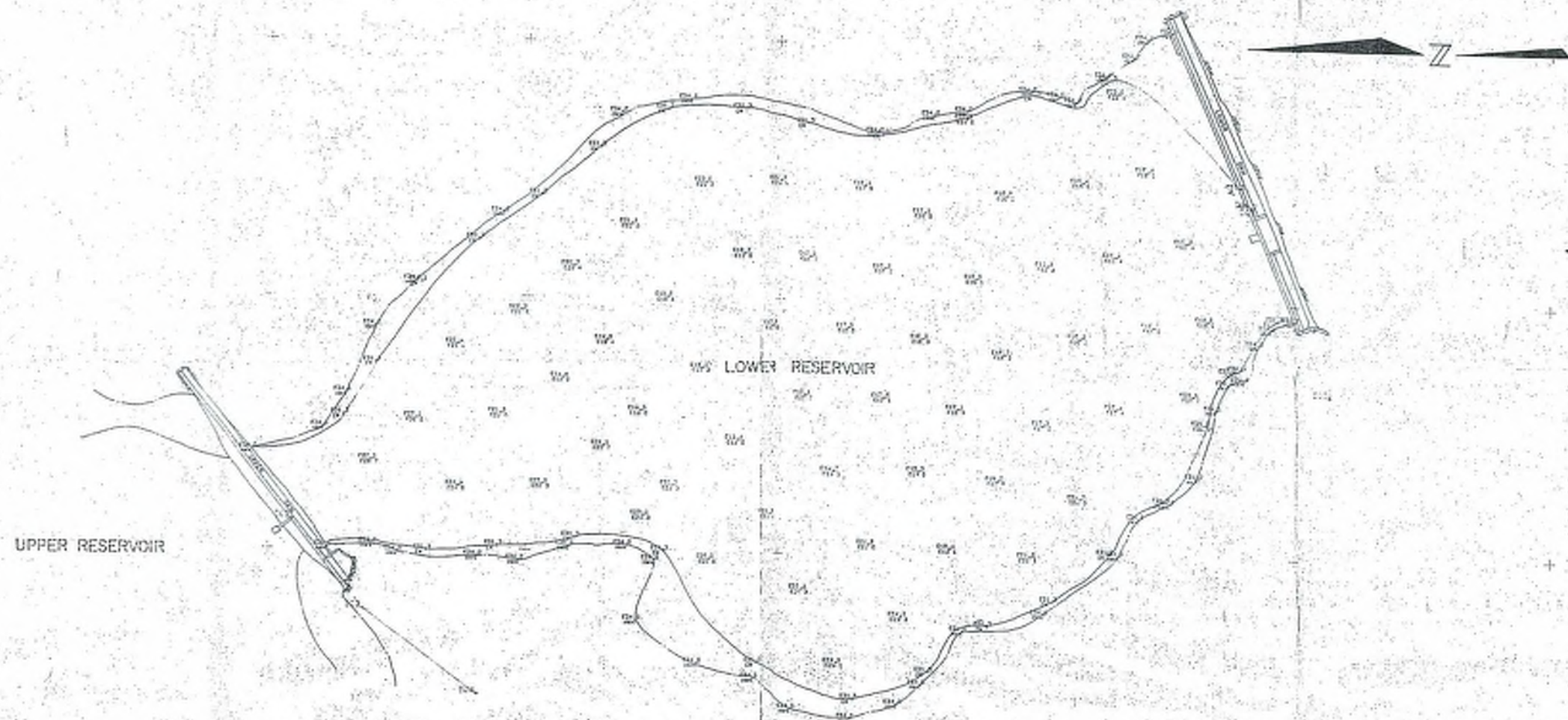
LEGEND	
ELEV.	ELEVATION OF WATER
H.W.	HIGH WATER MARK
N.W.	LOW WATER MARK
D.C.	DIAMETER OF CIRCLES
S.D.	STANDARD DEVIATION
C.S.	CORRECTION TO SURFACE
C.D.	CORRECTION TO DRY
C.T.	CORRECTION TO TIDE
C.B.	CORRECTION TO BATHYMETRIC
C.F.	CORRECTION TO FATHOM
C.M.	CORRECTION TO METERS
C.Y.	CORRECTION TO YARDS
C.Ft.	CORRECTION TO FEET
C.In.	CORRECTION TO INCHES
C.Cm.	CORRECTION TO CENTIMETERS
C.Nm.	CORRECTION TO NAUTICAL MILES
C.Km.	CORRECTION TO KILOMETERS
C.Mi.	CORRECTION TO MILES
C.Li.	CORRECTION TO LIGAS
C.Va.	CORRECTION TO VARS
C.Ru.	CORRECTION TO RUSSIAN
C.Pr.	CORRECTION TO PERSIAN
C.Ar.	CORRECTION TO ARABIC
C.Ch.	CORRECTION TO CHINESE
C.Ja.	CORRECTION TO JAPANESE
C.Hi.	CORRECTION TO HINDI
C.Bu.	CORRECTION TO BURMESE
C.Th.	CORRECTION TO THAI
C.Vi.	CORRECTION TO VIETNAMESE
C.La.	CORRECTION TO LAOSIAN
C.Kh.	CORRECTION TO KHMER
C.Mo.	CORRECTION TO MON
C.Mg.	CORRECTION TO MANDARIN
C.Uy.	CORRECTION TO UYGUR
C.Tib.	CORRECTION TO TIBETAN
C.Bur.	CORRECTION TO BURUNDI
C.Rw.	CORRECTION TO RWANDA
C.Bh.	CORRECTION TO BHUTAN
C.Nep.	CORRECTION TO NEPAL
C.Pak.	CORRECTION TO PAKISTAN
C.Af.	CORRECTION TO AFGHANISTAN
C.Ir.	CORRECTION TO IRAN
C.Is.	CORRECTION TO ISRAEL
C.Jo.	CORRECTION TO JORDAN
C.Le.	CORRECTION TO LEBANON
C.Sy.	CORRECTION TO SYRIA
C.Tr.	CORRECTION TO TURKEY
C.Ge.	CORRECTION TO GEORGIA
C.Ar.	CORRECTION TO ARMENIA
C.Az.	CORRECTION TO AZERBAIDZHAN
C.Cy.	CORRECTION TO CYPRUS
C.Gr.	CORRECTION TO GREECE
C.It.	CORRECTION TO ITALY
C.Sp.	CORRECTION TO SPAIN
C.Port.	CORRECTION TO PORTUGAL
C.Br.	CORRECTION TO BRAZIL
C.Am.	CORRECTION TO AMERICA
C.As.	CORRECTION TO ASIA
C.Eu.	CORRECTION TO EUROPE
C.Af.	CORRECTION TO AFRICA
C.Oc.	CORRECTION TO OCEANIA
C.An.	CORRECTION TO ANTARCTICA
C.Un.	CORRECTION TO UNITED STATES
C.Can.	CORRECTION TO CANADA
C.Mex.	CORRECTION TO MEXICO
C.Cu.	CORRECTION TO CUBA
C.Ve.	CORRECTION TO VENEZUELA
C.Co.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA
C.Ar.	CORRECTION TO ARGENTINA
C.Ch.	CORRECTION TO CHILE
C.Br.	CORRECTION TO BRAZIL
C.Per.	CORRECTION TO PERU
C.Ec.	CORRECTION TO ECUADOR
C.Col.	CORRECTION TO COLOMBIA
C.Ve.	CORRECTION TO VENEZUELA

DATE	REVISION
MAY 7, 1955	ORIGINAL DRAWING
VILLAGE OF COLD SPRING RESERVOIR SURVEYS TOWN OF PHILIPSTOWN, PUTNAM COUNTY, NEW YORK UPPER RESERVOIR SOUNDINGS	
SAMPLES FROM ACTUAL FIELD SURVEYS CONDUCTED BY Badley & Watson <i>Land Surveyors</i> Cold Spring New York 90595 (516) 285-9286	
SCALE: 1" = 40' HOR.	
SHEET 5 OF 5	
DATE: OCTOBER 1955	

[illegible]



DATE	REVISION
NOV. 1955	ORIGINAL DESIGN
VILLAGE OF COLD SPRING RESERVOIR SURVEYS TOWN OF PHILIPSTOWN, PUTNAM COUNTY, NEW YORK	
UPPER DAM PLAN & SECTION	
COMPILED FROM ACTUAL FIELD SURVEYS CONDUCTED BY Badey & Watson Land Surveyors Cold Spring New York 10516 (914) 265-9219	
SCALE: 1" = 4' H.	
SHEET 2 OF 6	DATE: OCTOBER 1965

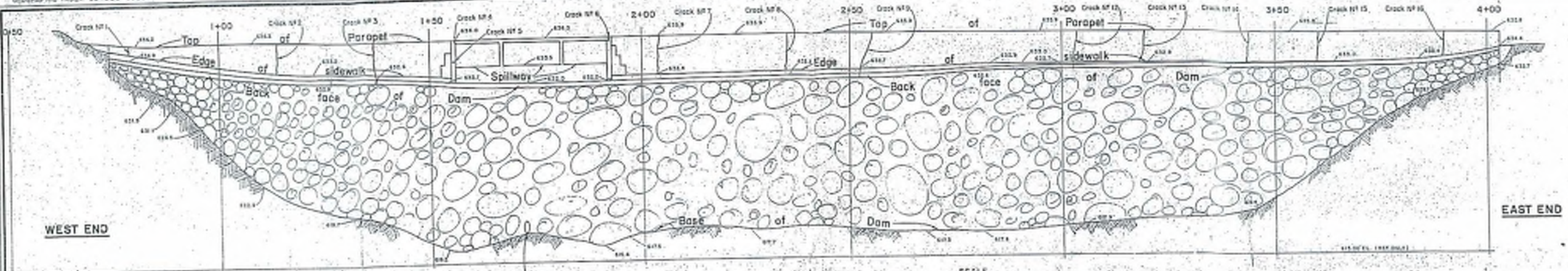


NOTE:
1. APPROXIMATELY 50' OF SILT EXISTS AT WATER EDGE
2. ELEVATION OF WATER TAKEN ON OCTOBER 25, 1985

LEGEND	
631.3	ELEVATION OF WATER
634.0	HIGH WATER MARK
625.8	ELEV. AT WHICH 12" DIA. DISC RESTS (BOTTOM OF WATER)
625.3	ELEV. AT WHICH A 1/2" PROBE IS REFUSED (BOTTOM OF SILT)

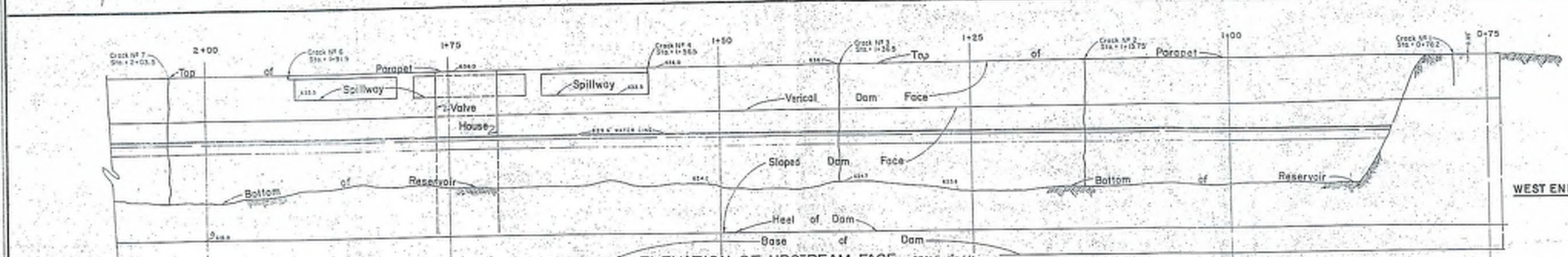
RECEIVED
DEC 6 1985
SAS 1017

DATE	REVISION
NOV 1985	ORIGINAL DRAWING
VILLAGE OF COLD SPRING RESERVOIR SURVEYS TOWN OF PHILIPSTOWN, PUTNAM COUNTY, NEW YORK	
LOWER RESERVOIR SOUNDINGS	
COMPILED FROM ACTUAL FIELD SURVEYS CONDUCTED BY	
Badey & Watson Land Surveyors Cold Spring New York 10516 UN43265-9226	
SCALE: 1" = 50 FT.	DATE: OCTOBER 1985
SHEET 3 OF 5	



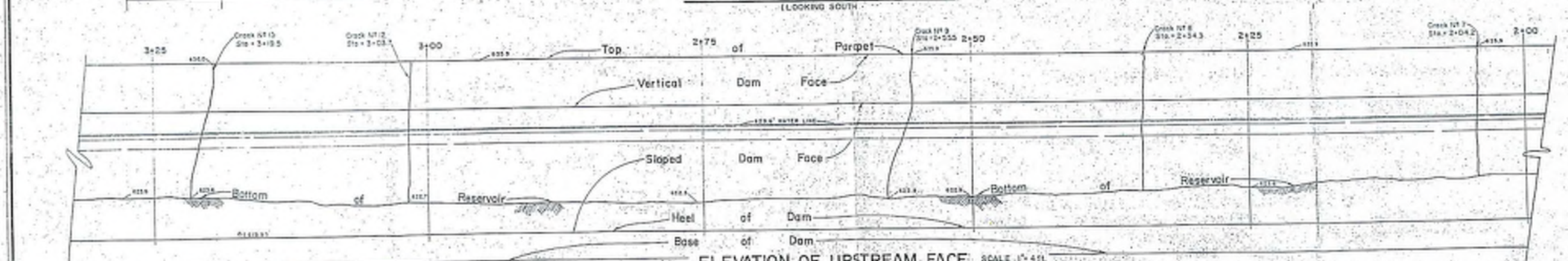
ELEVATION OF DOWNSTREAM FACE
(LOOKING NORTH)

SCALE
HORIZONTAL 1"=100'
VERTICAL 1"=40'



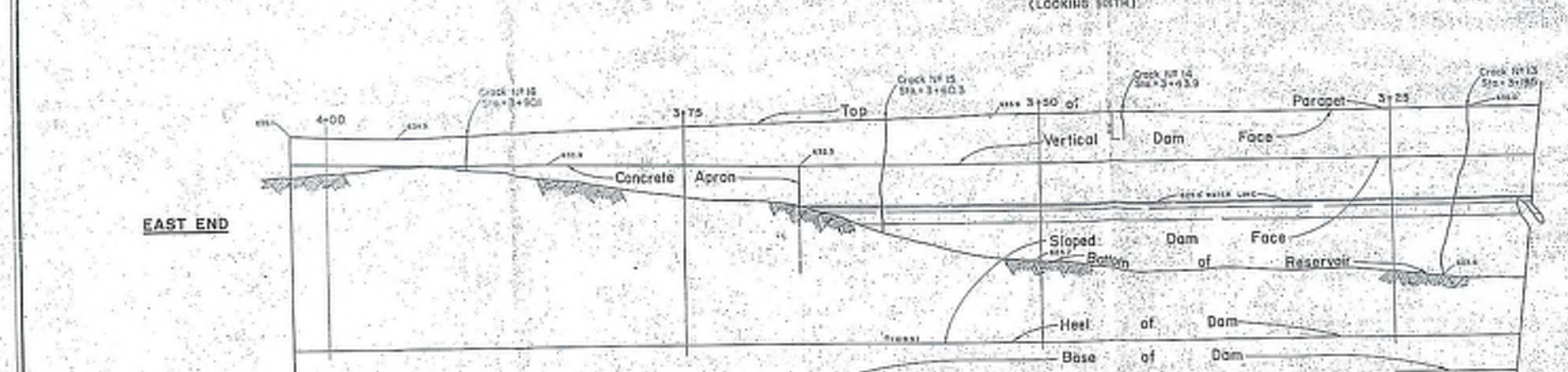
ELEVATION OF UPSTREAM FACE
(LOOKING SOUTH)

SCALE 1"=40'



ELEVATION OF UPSTREAM FACE
(LOOKING SOUTH)

SCALE 1"=40'



ELEVATION OF UPSTREAM FACE
(LOOKING SOUTH)

SCALE 1"=40'

RECEIVED
DEC 6 1985

DATE	REVISION
10/14/85	ORIGINAL DRAWING
VILLAGE OF COLD SPRING RESERVOIR SURVEYS TOWN OF PHILIPSTOWN, PUTNAM COUNTY, NEW YORK	
LOWER DAM ELEVATIONS	
COMPILED FROM ACTUAL FIELD SURVEYS CONDUCTED BY	
Badey & Watson Land Surveyors Cold Spring New York 10516 (914) 265-9218	
SCALE: 1"=40' & 1"=100'	DATE: OCTOBER 1985
SHEET 2 OF 3	

4.0 EMERGENCY DETECTION, EVALUATION, AND CLASSIFICATION

Since the goal of dam emergency planning is to protect lives and property, the timely identification of emergency conditions by trained personnel becomes paramount. Procedures to identify emergency conditions have been established by the Federal Emergency Management Agency (FEMA). Three (3) existing or potential emergency conditions of varying severity are identified below and described on Table 4.1 shown on page 18.

4.1 ADVISORY CONDITION

A Dam Advisory Condition is a situation where an unusual problem or situation, which may lead to a dam failure, has occurred or has the potential to occur, but a failure of the dam is not imminent.

Required notification and ongoing coordination throughout the emergency are as follows: (refer to the Emergency Notification Flow Chart, page 3)

- Notify the Dam Owner / Operator or 911
- Notify Putnam County EMO
- Notify Dam Owner's Engineer
- Notify Village of Cold Spring Highway Department Superintendent
- Notify the National Weather Service
- Notify the New York State DEC Dam Safety Section

Once a preliminary evaluation and notification has been executed, an immediate follow-up investigation, including a detailed, coordinated assessment and response should be performed in order to better evaluate the potential for upgrading the level of the current condition.

4.2 WARNING CONDITION

A Dam Warning Condition is any developing or occurring event or circumstance which is or may adversely affect the integrity of the dam, but is considered controllable. The Dam Warning Condition has the potential of evolving into a Dam Emergency condition.

Required notification and ongoing coordination throughout the emergency are as follows: (refer to the Emergency Notification Flow Chart, page 3)

- Notify the Dam Owner / Operator or 911
- Notify Putnam County EMO
- Notify Dam Owner's Engineer
- Notify Village of Cold Spring Highway Department Superintendent
- Notify New York State EMO

- Notify Putnam County Supervisor of Maintenance & Construction
- Notify Town of Philipstown Councilman
- Notify Village of Nelsonville Mayor

Once a preliminary evaluation and notification has been executed, an immediate follow-up investigation, including a detailed, coordinated assessment and response should be performed in order to better evaluate the potential for upgrading the level of the current condition.

4.3 EMERGENCY CONDITION

A Dam Emergency Condition is defined as an unavoidable danger. A dam emergency condition is defined as one or more of the following situations:

- Water has overtopped or will overtop any dam or dike.
- Any uncontrollable erosion, settlement or upheaval occurring on the downstream slope or at the toe of the dam.
- Any uncontrollable leakage through any dam structure.
- A dislocation or failure of any structure which allows for an expanding, uncontrollable discharge of water through the spillway, dam or dikes indicating a breach is occurring.
- Dam is failing, about to fail or has failed.

Required notification and ongoing coordination throughout the emergency are as follows: (refer to the Emergency Notification Flow Chart, page 3)

EVERYONE LISTED ON THE NOTIFICATION FLOWCHART MUST BE CONTACTED.

Refer to Table 4.1 on the following page for an expanded description of each condition

TABLE 4.1 - POSSIBLE EMERGENCY OCCURRENCES AT VILLAGE OF COLD SPRING'S UPPER, LOWER OR FOUNDRY BROOK DAMS

TYPE OF OCCURRENCE	ADVISORY CONDITION (YELLOW) POTENTIAL DANGER	WARNING CONDITION (ORANGE) DEVELOPING DANGER	EMERGENCY CONDITION (RED) UNAVOIDABLE DANGER
I. MOVEMENT: 1. Displacement of the dam crest upstream or downstream. 2. Settlement of the dam crest. 3. Bulging of the downstream dam face or the ground along the toe of the dam.	Crests and/or embankments remain level (flat). Noticeable change in the horizontal alignment. Vertical alignment of the crest has dropped by several inches, compared to previous conditions. Boulders or concrete appear out of alignment or missing. Soft ground condition, but no significant seepage.	Crests displaced laterally, with movement that can be measured daily with survey equipment. Settlement is progressing at a rate that can be measured daily with survey equipment. Movement measurable using survey equipment. Soft ground conditions with significant new seepage or increased volume of seepage at an existing seep location.	Crest displacement is visibly progressing. Settlement is visibly progressing, with increasing seepage and other displacement. Movement is visibly progressing. Bulging along toe of the dam. Seepage flow increasing with visible displacement of soils.
II. SEEPAGE: 1. Source: 2. Flow Volume: 3. Erosion of soil: 4. Flow Turbidity:	New. Slight. None. Flow is clear.	New or old. Increased or significant. Soil at surface at abutments or toe of dam is eroding. Flow is turbid; carrying sediment.	New or old. Noticeably increasing with time. Soil at surface at abutments or toe of dam is eroding. Flow is carrying increasing volume of solids.
III. FLOODING: 1. Lake Level:	Lake level is within 1 foot of dam crest elevation and rising faster than three (3) inches per hour.	Lake level is at the dam crest and rising faster than three (3) inches per hour.	Lake level more than one (1) foot above the dam crest and continuing to rise, at any rate.
IV. EARTHQUAKE: 1. Movement Resulting From Earthquake: 2. Seepage Resulting From Earthquake:	See corresponding description of movement above. See corresponding description of seepage above.	See corresponding description of movement above. See corresponding description of seepage above.	See corresponding description of movement above. See corresponding description of seepage above.
V. DAMAGE TO OUTLET WORKS: 1. Pipeline:	Settlement, cracking or leakage of outlet pipe.	Increasing volume of leakage. Erosion around or undermining of the outlet pipe.	Rupture of the outlet pipe with increasing erosion of material which could cause settlement.
VI. SABOTAGE: VII. ANY OTHER CONDITION OR SITUATION WHICH MAY REPRESENT AN ADVISORY, WARNING, OR EMERGENCY CONDITION:	1. Bomb Threat - no confirmation of device. 2. Minor Damage - conditions similar to those noted in the column above. See appropriate section above, depending on the nature of the damage.	1. Bomb Threat - device confirmed. 2. Damage reflects conditions noted in the column above. See appropriate section above, depending on the nature of the damage.	Major Damage - See appropriate section above, depending on nature of damage. See appropriate section above, depending on the nature of the damage.

5.0 GENERAL RESPONSIBILITIES UNDER THE EAP

This section outlines the responsibilities of the organizations that are anticipated to be involved in implementing this Emergency Action Plan so that effective, timely action can be taken should an occurrence or emergency develop at the dam. Specifically, this includes the responsibilities of the Dam Owner/Operator, local Fire departments, local, County and State Police, local town officials and other identified parties. All of the above entities are equally responsible to thoroughly read and familiarize key personnel with this EAP and maintain a readily available and up-to-date copy of the plan.

5.1 DAM OWNER / OPERATOR RESPONSIBILITIES

During an emergency condition:

1. Identification of the emergency condition.
2. Notification of condition to:
 - Putnam County EMO – Deputy Emergency Coordinator
 - Tectonic Engineering - Chief Geotechnical Engineer
 - Village of Cold Spring Highway Department – SuperintendentPerson responsible for the notification:
 - Water & Wastewater Department Superintendent
3. Implementation and direction of emergency repairs.
4. Update the emergency status to the local emergency officials.
Person responsible for the notification:
 - Village of Cold Spring Water & Wastewater Department – Superintendent
5. Provisions for security measures at the dam.
6. Provision of technical assistance to local emergency officials, when necessary.
7. Reporting termination of emergency situation on-site at the dam.

In non-emergency conditions, owner/operator must also provide for:

1. Routine maintenance and operations of the dam.
2. Routine program of surveillance of the dam.
3. Annual review, updating, and distribution of the EAP.

5.2 EAP COORDINATOR RESPONSIBILITIES

The EAP Coordinator, designated by the dam owner/operator, shall be responsible for EAP related activities including:

1. Inclusion and distribution of document revisions.
2. Establish training seminars.
3. Coordinate EAP exercises.

4. Contact person for any EAP related inquiries.

EAP Coordinator Name: Mayor Kathleen E Foley

Phone Number: Mobile. – 347-721-2086

Office – 845-265-3611

5.3 VILLAGE OF COLD SPRING POLICE RESPONSIBILITIES

With the aid of the Village of Cold Spring Fire Department, but under his/her command and control, the Village of Cold Spring Police Commanding Officer shall be responsible for the following:

1. Warn the public of emergency conditions at the dam as appropriate.
2. Implement and direct required evacuations of threatened areas.
3. Establish reception centers for evacuated people.
4. Secure and control access to evacuated areas.
5. Conduct rescue and recovery operations as required.
6. Determination and declaration of termination of the emergency/disaster response activities off-site.

5.4 PUTNAM COUNTY EMO RESPONSIBILITIES

Provide overall coordination and resource management of county response activities in support of local and county government, as appropriate. To include, but not limited to the following:

1. Pass warning of emergency conditions and coordinate emergency/disaster response activities at the dam to the NYS EMO, Emergency Coordination Center, Putnam County Supervisor of Maintenance & Construction, Town of Philipstown Councilman in charge of Emergency Management, Village of Nelsonville Mayor, and Putnam County Sheriff.

5.5 NYSEMO RESPONSIBILITIES

Provide overall coordination of state response activities, which are supplemented to local efforts, as appropriate. For example, such efforts could include:

1. Provision of assistance to the affected municipalities and Putnam County (when requested and beyond local authority capabilities).
2. Coordination of specialized assistance.
3. Notification of appropriate State agencies.

5.6 NYSDEC-DSS RESPONSIBILITIES

1. Provide technical assistance to the dam owner/operator.
2. Assist in the evaluation and resolution of potential emergency conditions.
3. Has the authority to direct the owner/operator to take necessary safety measures.

5.7 RESPONSIBILITIES FOR TERMINATION

The owner/operator is responsible for evaluating a declared emergency condition and should consult with their Engineer, who shall collaborate with the NYSDEC-DSS to identify when an emergency condition no longer exists on-site at the dam.

5.8 RESPONSIBILITIES FOR RECOVERY

The basic goal of the recovery phase is to demobilize and return to the pre-emergency situation. The owner/operator is responsible for implementing all actions necessary to achieve this goal on-site at the dam.

The Owner/Operator is responsible for directing all on-site recovery activities. The basic recovery actions common to the three (3) dam emergency conditions are:

- Secure access to emergency site,
- Restore basic facilities and services
- Assess damage.
- Long term measures remedial measures which may require permits may be needed.
- A Post Incident Report describing the conditions which led to the emergency should be submitted to the NYSDEC-DSS within thirty days.
(See Appendix B)

6.0 PREPAREDNESS

6.1 EMERGENCY NOTIFICATION DIRECTORY

1. Dam Owner: Village of Cold Spring
Contact Person: Matt Kroog, Superintendent, Water & Wastewater
Department
Address: 85 Main Street, Cold Spring, NY 10516
Phone No: 845-265-7986 24-Hr No: 845-590-3075
E-mail address: vcswater@bestweb.net

2. Dam Operator: Village of Cold Spring
Address: 85 Main Street, Cold Spring, NY 10516
Phone No: 845-265-7986 24-Hr No: 845-590-3075
E-mail address: vcswater@bestweb.net

3. EAP Development Crew
Coordinator:
Phone No:

Crew	Phone No.
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>

4. Maintenance & Operations Crew

Supervisor: John Van Tassel, Philipstown Supervisor

Phone No: 845-224-8172

Crew	Phone No.
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>

5. Inspectors

Name	Phone No.
<u></u>	<u></u>
<u></u>	<u></u>
<u></u>	<u></u>

6. Owner's Engineer

Name: Tectonic Engineering Consultants, Geologists, & Land Surveyors, D.P.C.

Contact Person: Mark Stier – Senior Vice President

Address: 70 Pleasant Hill Road, PO Box 37, Mountainville, NY 10953

Phone: 845-534-5959 24-Hr No: 845-691-3993 (home)

7. Municipalities

Municipality	Phone No.	Police No.
<u>Village of Cold Spring</u>	<u>845-265-3611</u>	<u>845-265-3407</u>
<u>Village of Nelsonville</u>	<u>845-265-2500</u>	<u>845-265-9551 (Sheriff)</u>
<u>Town of Philipstown</u>	<u>845-265-5200</u>	<u>845-265-9551</u>

8. Counties

County EMO

Phone No.

Putnam

845-808-4000

9. State Agencies

Agency

Phone No.

24-Hr No.

NYSEMO

(518) 292-2302

(518) 292-2200

NYS-POLICE

(845) 279-6161

NYSDEC-DSS

(518) 402-8185

(518) 852-0415

10. National Weather Service

(631) 924-0383

Emergency Operation Center (EOC): The EOC is the location where personnel will be coordinated and updated during an emergency.

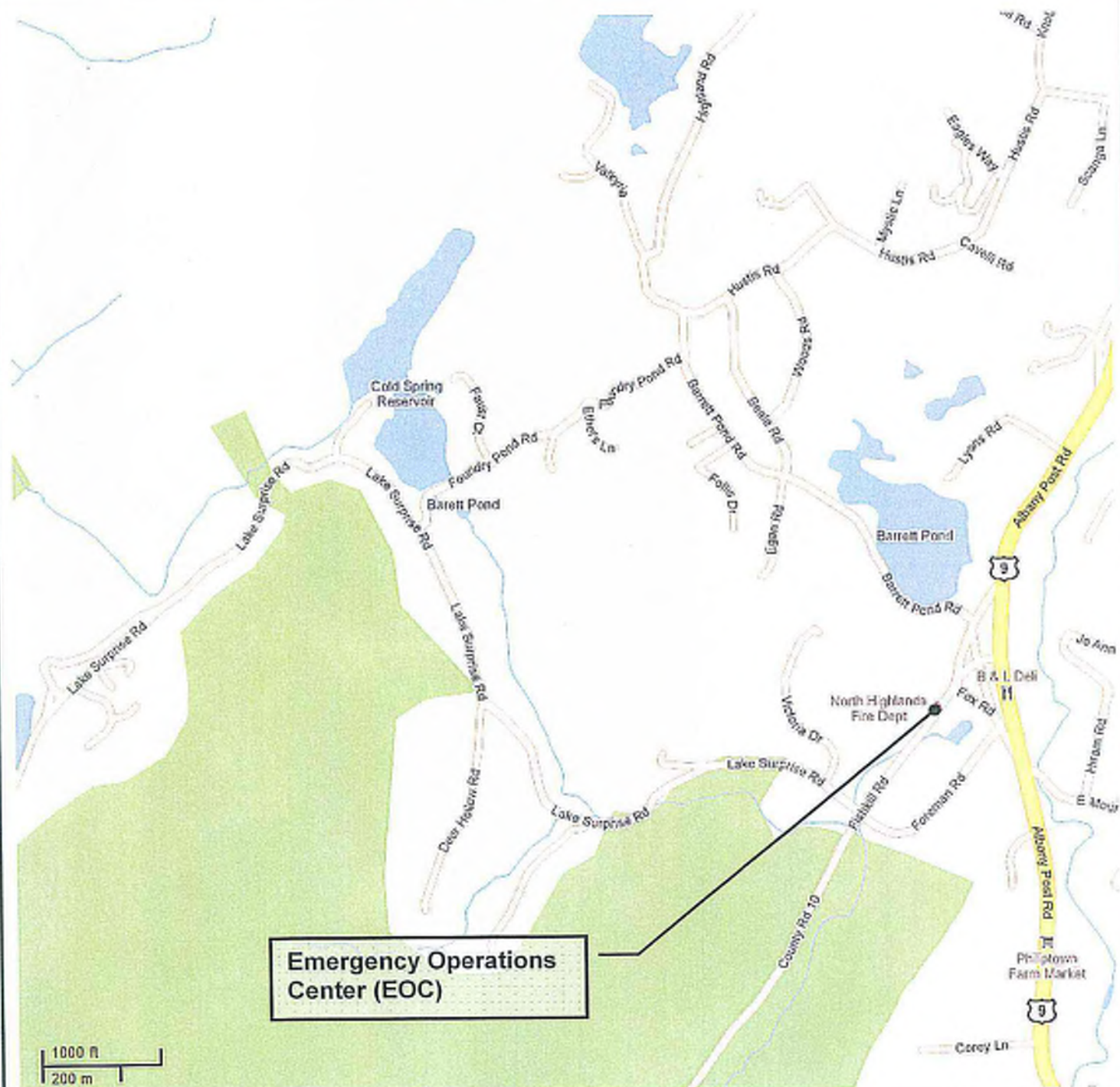
Address: North Highlands Fire Department
504 Fishkill Road (County Road 10)
Cold Spring, NY 10516

Phone Number: (845) 265-9595

Direction to the Emergency Operations Center from the nearest State or County highway: From Route 9 (Albany Post Road), turn onto Fishkill Road (County Road 10), go approximately 600 feet, EOC on right side.

6.2 EOC LOCATION MAP

See Figure 3 on the following page.



APPROXIMATE SITE LOCATION INDICATED ON
THE MAP IN PUTNAM COUNTY

FIGURE 3



**EMERGENCY ACTION PLAN
UPPER & LOWER COLD SPRING
& FOUNTAIN BROOK DAMS
PUTNAM COUNTY
NEW YORK**

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants, P.C.
PO Box 37, 70 Pleasant Hill Road
Mountainville, NY 10953

T: (845) 534-5959
F: (845) 534-5999
www.tectonicengineering.com

SCALE
NTS

DATE
5/21/10

DRAWN BY
LJG

WORK ORDER
5433.01

6.3 PREPAREDNESS ACTIONS

Preparedness actions are taken to help reduce or eliminate the effects of a dam failure or abnormal operational releases and to facilitate response to emergencies. These actions shall be identified during the Orientation Meeting and added to this EAP in order to refine coordination of all parties.

Additions to the EAP should describe preparedness actions taken both prior to and following the onset of emergency conditions. Preparedness actions involve the installation of equipment or the establishment of procedures for one or more of the following purposes:

- Preventing emergency conditions from developing or warning of the onset of emergency situations. Currently, there are two actions that can be done to help prevent emergency conditions from occurring. These are to open the Low Level Outlet (LLO) valves on any or all of the dams (particularly if warning of a significant flood is present), and, if lake levels rise close to the top of the lower dam, and possibly the upper dam, placement of sandbags at the abutments to concentrate flow over the concrete caps of the dams will help to prevent erosion of the abutments.
- Facilitating the operation of the dam in an emergency situation.
- Minimizing the extent of damage resulting from any emergency situations that do develop.

The need for timely action in an emergency situation cannot be overemphasized. Additions to the EAP, post Orientation Meeting, should contain a discussion of provisions for monitoring and evaluation of an emergency situation and should clearly indicate how emergency response procedures can be implemented in a timely manner. An important factor in the effectiveness of the EAP is the prompt detection and evaluation of information obtained from instrumentation and/or physical inspection procedures.

There are several types of preparedness actions that should be considered when appending this EAP. These actions include:

- Monitoring conditions at the dam and in the downstream inundation area, such as put someone out at the dam with communication abilities to watch and report the progress of any potential incident.
- Response during adverse times such as darkness, weekends, holidays and bad weather including the preparation of a chain of command, with alternatives for key personnel that may not be available at any given time, so key decisions can be made without delay.
- Access to the upper and lower dams should be primarily via Foundry Brook Road and Barrett Pond Road or Hustis Road, to prevent personnel and equipment from being cut off from exiting the area if a flood should occur. Access to the right (southern) abutments may be limited to using Lake Surprise Road for the Upper and Lower dams, however, but care

should be taken to minimize people or equipment from becoming trapped. It should be attempted to minimize travel along Fishkill Road (CR 10) between the water plant and Lake Surprise Road. Access to Foundry Brook Dam should be from the south, along Fishkill Road.

- Alternative systems of communication, such as land lines, cell phones, walkie-talkies and radios. These should be discussed and agreed upon by the involved parties at the Orientation Meeting.
- Location and availability of emergency supplies, equipment, information and services. These should be discussed and agreed upon by the involved parties at the Orientation Meeting.
- Provisions for security measures at the dam during the emergency.

Development and updating of the EAP are ideal times to review preparedness measures and evaluate whether they are adequate. The Orientation Meeting shall serve as the initial development with refinement as more information or equipment becomes available.

6.4 SURVEILLANCE CHECKLIST

The surveillance checklist, found in Appendix B, should be utilized by the Inspectors listed on the Emergency Notification Directory during their inspections. A record of these inspections and their findings should be kept by the owner/operator for ready reference.

6.5 LIST OF CONTRACTORS

It will be the responsibility of the owner to keep current the list of contractors that may be contacted during an emergency condition for equipment, materials, and repairs.

1. Contractor: _____

Contact person: _____ Phone No: _____

Address: _____

Services contracted for: _____

2. Contractor: _____

Contact person: _____ Phone No: _____

Address: _____

Services contracted for: _____

3. Contractor: _____

Contact person: _____ Phone No: _____

Address: _____

Services contracted for: _____

6.6 AVAILABLE ON-SITE MATERIAL

There are no stockpiled materials available on-site.

6.7 AVAILABLE ON-SITE EQUIPMENT

There is no prepositioned equipment available on-site.

6.8 AVAILABLE OFF-SITE MATERIAL

<u>Material</u>	<u>Company & Location</u>	<u>Phone No.</u>	<u>Approximate Arrival Time to Dam (Min)</u>
Sand	Village of Cold Spring - Highway Dept	(845) 625-5169	15 (Upper/Lower) 5 (Foundry Brook)
Sandbags	Village of Cold Spring - Highway Dept	(845) 625-5169	15 (Upper/Lower) 5 (Foundry Brook)

6.9 AVAILABLE OFF-SITE EQUIPMENT

<u>Material</u>	<u>Company & Location</u>	<u>Phone No.</u>	<u>Approximate Arrival Time to Dam (Min)</u>
Valve Wrench	Village of Cold Spring - Water & Wastewater Superintendent	(845) 590-3075	15 (Upper/Lower) 5 (Foundry Brook)

Provisions for obtaining and delivering the materials needed for making sandbags, as well as personnel to do so, should also be made.

7.0 INUNDATION MAPS

The Inundation Maps show the delineated areas that would become flooded as a result of failure at the Upper and/or Lower Cold Spring Dams based on the analysis described below. The Foundry Brook Dam was not included in the analysis because of both its comparative small storage volume and its Class A designation which does not require inundation mapping in accordance with the NYSDEC Dam Safety Regulations. These maps should be used by the dam Owners and emergency management officials to facilitate timely notification and evacuation of areas that would likely be affected by a dam failure or flood condition.

7.1 HYDROLOGIC AND HYDRAULIC ANALYSIS

The inundation maps were developed based on hydrologic and hydraulic analyses of the Upper and Lower Cold Spring Dams, their contributing watershed, and the area downstream along Foundry Brook. The analysis was terminated at the Hudson River. The hydrologic analysis of the watershed to the dam determined the Spillway Design Flood (SDF) in accordance with NYSDEC regulations. The SDF was then used in the hydraulic analysis of the dam, dam breach and the effects on the downstream areas.

The hydrology was modeled in the HEC-HMS (Hydrologic Engineering Center Hydrologic Modeling System, version 3.4.0) computer program. HEC-HMS is designed to simulate the precipitation-runoff processes of watershed systems. A synthetic storm was developed using National Weather Service PMP (Probable Maximum Precipitation) estimates, HMR-51 (Hydrometeorological Report No. 51), HMR-52 (Hydrometeorological Report No. 52), and geometric characteristics of the watershed. Basin boundary coordinates were established based on USGS topographic data. The information produced a Probable Maximum Storm (PMS) which, combined with a precipitation-runoff simulation model, calculated a Probable Maximum Flood (PMF) hydrograph. The resulting PMS is representative of 15-minute incremental precipitation values over a 72-hour PMP rainfall event. The SDF for the Upper and Lower Cold Spring Dams, Class C (high hazard) structures, is designated as one-half (0.5) of the PMF meteorological model.

The contributing watershed areas to Upper and Lower Cold Spring Dams were delineated and measured from U.S.G.S. StreamStats Version 2 online interactive tools and verified using available mapping. The remaining hydrologic parameters needed in the HEC-HMS model: initial abstractions, impervious percentages, times of concentration, and reach data, were calculated or estimated based on U.S.G.S StreamStats data, USGS topographic maps, aerial photographs, and field observations. Inflow hydrographs resulting from the hydrologic parameters were routed through the contributing watershed with HEC-HMS. The watershed parameters are summarized in Table 7-1.

Table 7- 1: Watershed Characteristics

Parameter	Upper Cold Spring Dam	Lower Cold Spring Dam
Watershed Area (sq. mi.)	0.76	0.05
Initial Loss (inches)	1	1
Constant Rate (inches)	0.1	0.1
Time of Concentration (minutes)	69	34

The hydraulic analysis included modeling of the dams, the breaches at the dams and the resulting discharges to Foundry Brook and the downstream areas. The HEC-HMS model was used to model the hydraulics of the dams, dam breaches and area downstream of the dams. Because of the proximity of the Upper Dam to the Lower Dam, there is the possibility of cascading effects from the breaches. Therefore the analysis included breaches of the individual dams and the combination of dams during the SDF conditions and Sunny Day (no precipitation) condition. The breach scenarios analyzed for the Upper and Lower Dam are summarized in Table 7-2.

Table 7- 2: Breach Scenarios Analyzed

Scenario	Dam Breached	Hydrologic Condition	Upper Dam Breach Trigger	Lower Dam Breach Trigger
1	Neither	SDF	No breach	No breach
2	Upper	SDF	Peak water elevation during the SDF	No breach
3	Lower	SDF	No breach	Peak water elevation during the SDF
4	Both	SDF	Peak water elevation during the SDF	Peak water elevation resulting from Upper Dam breach
5	Upper	Sunny	No trigger	No breach
6	Lower	Sunny	No breach	No trigger
7	Both	Sunny	No trigger	Peak water elevation resulting from Upper Dam breach

The breach parameters are based on Chapter 2 of the Federal Energy Regulatory Commission (FERC) guidance manual, “Engineering Guidelines for the Evaluation of Hydropower Projects.” The key breach parameters used in the breach analysis are summarized in Table 7-3.

Table 7- 2: Breach Parameters

Parameter	Upper Cold Spring Dam	Lower Cold Spring Dam
Minimum Dam Top Elevation (ft)	651.3	634.4
Bottom elevation (ft)	631.0	617.5
Bottom width (ft)	100	100
Side slope (H:V)	0:1	0:1
Development time (HR)	0.1	0.1
SDF Trigger elevation (ft)	652.8	640.7
Sunny Trigger elevation (ft)	NA	638.63

The hydraulic analysis results from HEC-HMS for the three conditions are tabulated in Table 7-4.

Table 7- 4: HEC-HMS Hydraulic Results

Dam	Parameter	SDF (No Breach) Results	Sunny Day (Breach Upper and Lower) Results	SDF (Breach Upper and Lower) Results
Upper Cold Spring Dam	Peak Inflow (cfs)	2,423.1	NA	2,423.1
	Peak Outflow (cfs)	2,396.4	13,158.9	18,859.9
	Peak Storage (ac-ft)	151.6	109.0	151.6
	Peak WSE (ft)	652.81	649.70	652.81
	Peak Dam overtopping (ft)	1.51	NA	1.51
Lower Cold Spring Dam	Peak Inflow (cfs)	2,507.1	13,158.9	18,957.5
	Peak Outflow (cfs)	2,497.5	15,747.19	19,057.8
	Peak Storage (ac-ft)	137.2	151.2	178.7
	Peak WSE (ft)	637.38	638.64	640.78
	Peak Dam overtopping (ft)	2.98	4.24	6.38

HEC-HMS was also used to model the area downstream of the Lower Cold Spring Dam. The downstream model was derived from USGS topographic information. The hydrologic data was used to model the stream hydraulics for the different breach scenarios and hydrologic conditions as listed in Table 7-2. The depths derived at each cross section from the model during the different breach scenarios were

compared and the similar hydraulic responses were grouped together and summarized in Table 7-5.

Table 7- 5: Inundation Grouping Summary

Scenario	Dam Breached	Hydrologic Condition	Inundation Group
1	Neither	SDF	A
2*	Upper	SDF	B
3	Lower	SDF	B
4*	Both	SDF	C
5	Upper	Sunny	A
6	Lower	Sunny	A
7*	Both	Sunny	B

*Indicates results used to generate mapping limits

The culverts and bridges that convey the Foundry Brook, as well as the Foundry Brook Dam, were analyzed as critical inundation structures downstream of the dam. A summary of these locations and arrival times and depths of peak flow for the Sunny Day and SDF breach conditions are tabulated in Table 7-6.

Table 7- 6: Hydraulic Results at Inundated Structures

Location	Downstream Position Relative to Lower Cold Spring Dam (mi)	Peak Wave Arrival Time Relative to Breach (Hr:Min) Sunny Day*	Sunny Day Breach Peak Depth (scenario 7) (ft)	Peak Wave Arrival Time Relative to Breach (Hr:Min) SDF*	SDF Breach Peak Depth (scenario 4) (ft)
Lake Surprise Road	0.73	00:04	4.5	00:04	6.9
Fishkill Road (End of Lake Surprise Road)	1.06	00:16	6.9	00:12	11.8
Fishkill Road (North of Eagles Nest)	1.64	00:36	8.9	00:20	18.0
Fishkill Road (North of Rocky Road)	2.32	00:38	5.6	00:22	5.8
Foundry Brook Dam	2.53	00:44	6.0	00:28	8.0
Route 301 (Cold Spring Carmel Road)	3.44	00:56	4.0	00:32	8.3

Location	Downstream Position Relative to Lower Cold Spring Dam (mi)	Peak Wave Arrival Time Relative to Breach (Hr:Min) Sunny Day*	Sunny Day Breach Peak Depth (scenario 7) (ft)	Peak Wave Arrival Time Relative to Breach (Hr:Min) SDF*	SDF Breach Peak Depth (scenario 4) (ft)
Peekskill Road	3.91	01:28	3.8	00:50	9.8
Route 9D	4.16	01:38	7.4	00:52	14.5
Hudson River	5.02	01:44	0.75	00:56	2.7

*Time set to zero at start of breach

The properties that are in the inundation areas are summarized by downstream areas in Table 7-7.

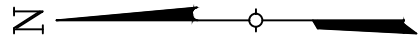
Table 7- 7: Inundated Evacuation Areas

Figure #	Area /Street	Type of Inundation	Inundation Group
4	Town of Philipstown: Properties on Foundry Pond Road	Residential Property	A, B, C
	Town of Philipstown: Properties on Lake Surprise Road	Road Access	A, B, C
	Town of Philipstown: Properties on Deer Hollow Road	Road Access	A, B, C
5	Town of Philipstown: Properties on Lake Surprise Road	Residential Properties	A, B, C
	Town of Philipstown: Properties on Victoria Drive	Road Access	C
	Town of Philipstown: Properties on Fishkill Road near Foreman Road	Residential Properties	C
	Town of Philipstown: Properties on Foreman Road	Residential Properties	A, B, C
	Town of Philipstown: Properties on Foreman Road	Road Access	A, B, C
8	Town of Philipstown: All residences on Rocky Road	Road Access	A, B, C
	Village of Nelsonville: Properties on Main Street, northeast of Wood Avenue	Residential/ Commercial Properties	A, B, C
	Village of Nelsonville: Properties on Route 301 (Cold Spring Carmel Road)	Residential Properties	C

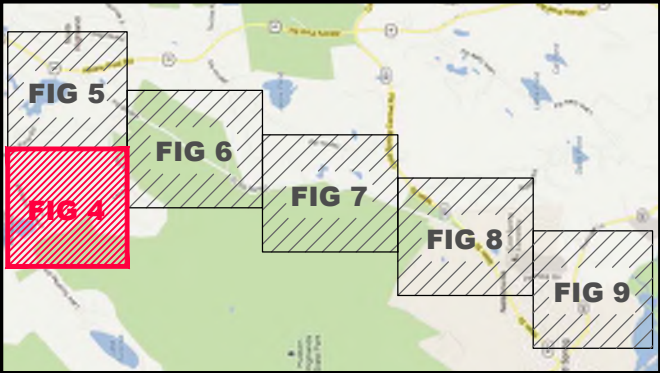
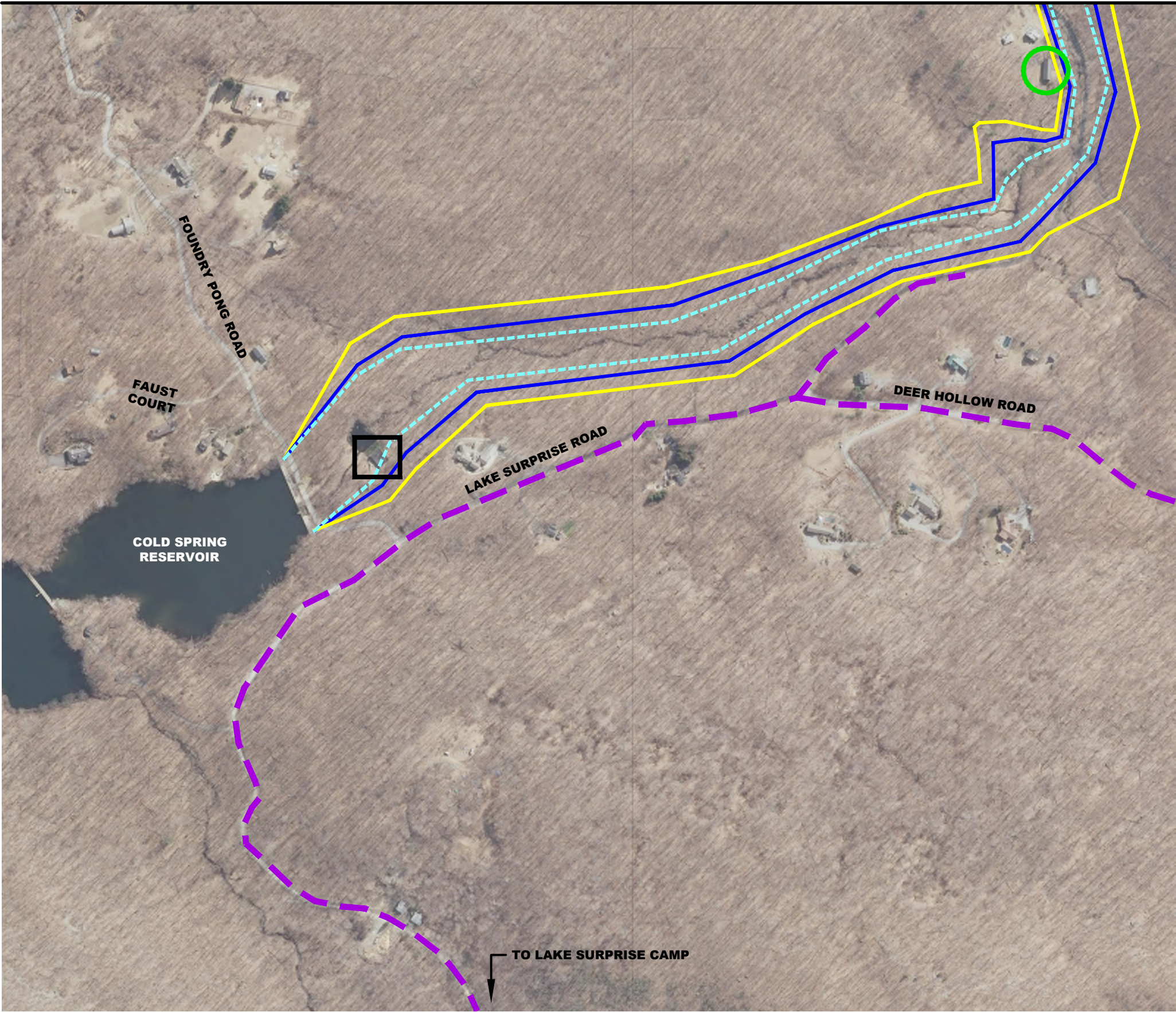
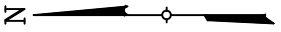
Figure #	Area /Street	Type of Inundation	Inundation Group
	Village of Nelsonville: All residences on Billy's Way	Road Access	A, B, C
	Village of Nelsonville: Property on Brook Street	Residence	C
	Village of Nelsonville: Property on Peekskill Road	Residence	A, B, C
9	Village of Cold Spring: Property at the end of Kemble Avenue	Residence	A, B, C

7.2 INUNDATION MAPS

Inundation Maps for the Upper and Lower Cold Spring Dams are included on the following pages.



MATCH LINE FIGURE 5



KEY MAP

SCALE: NTS

INUNDATION GROUPS

- A: { LOWER DAM SUNNY DAY BREACH
UPPER/LOWER DAM SDF
- B: { UPPER DAM SUNNY DAY BREACH
LOWER DAM SDF BREACH
- C: UPPER DAM SDF BREACH

NOTE

MAPPING BASED ON APRIL 2009 IMAGERY.

LEGEND

- INUNDATION GROUP A
- INUNDATION GROUP B
- INUNDATION GROUP C
- - - TRAVEL ACCESS IMPACTED
- - - MUNICIPAL BOUNDARY
- INUNDATION GROUP C IMPACTED STRUCTURE
- INUNDATION GROUPS A, B & C IMPACTED STRUCTURES
- ACCESS IMPACTED STRUCTURE

TECTONIC

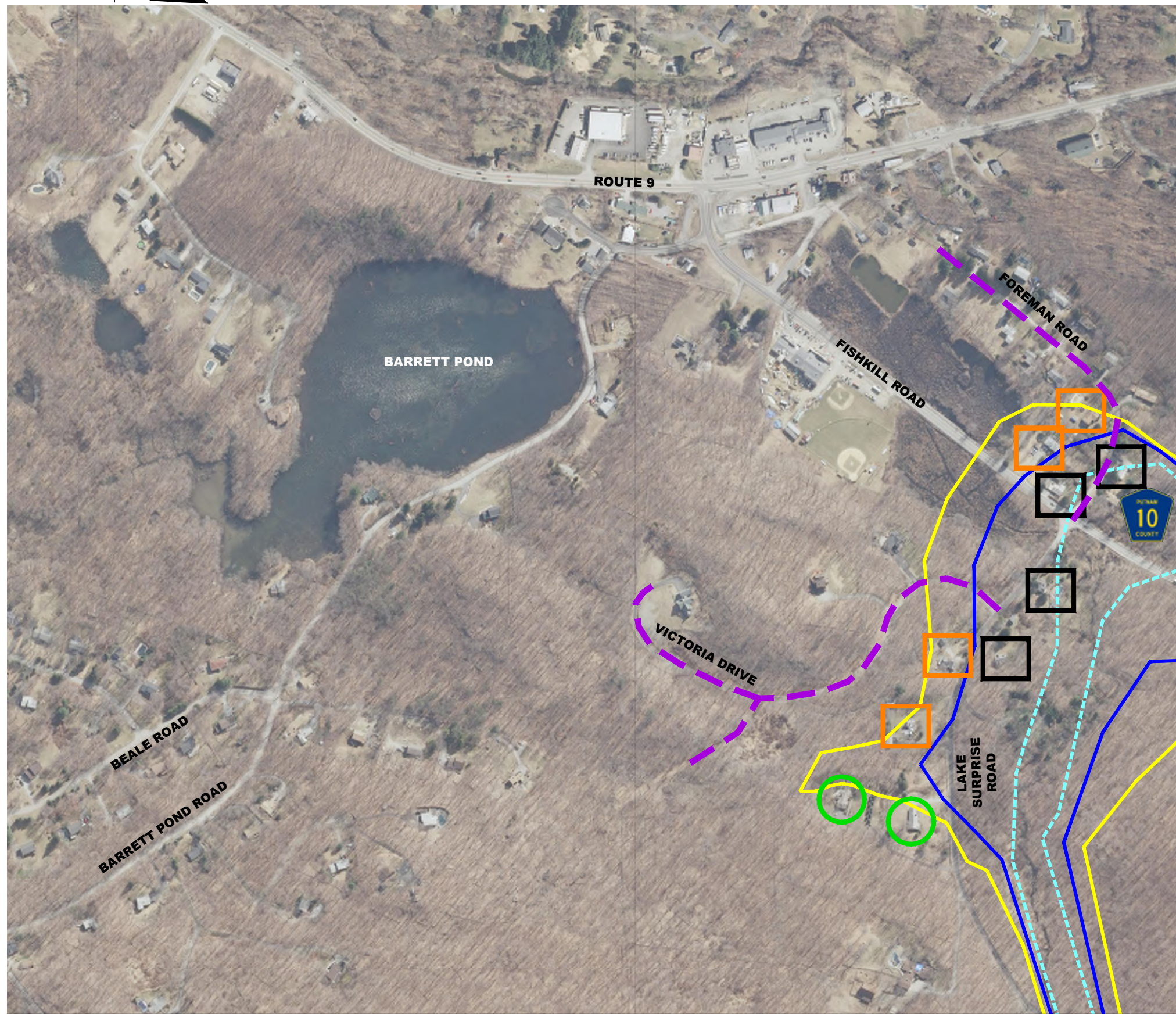
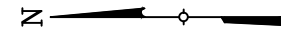
- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C. Phone: (845) 534-5959
P.O. Box 37, 70 Pleasant Hill Road Fax: (845) 534-5999
Mountainville, NY 10953 www.tectonicengineering.com

INUNDATION MAP

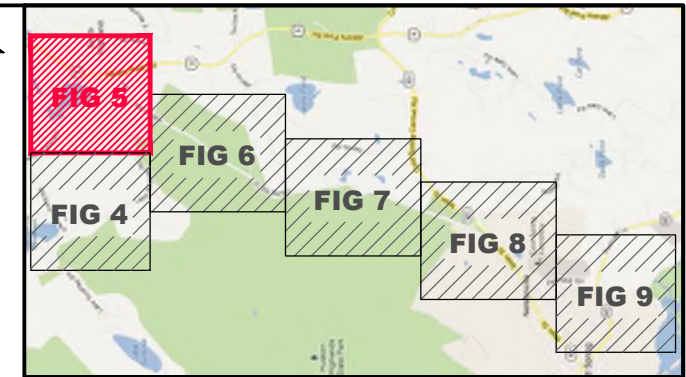
COLD SPRING DAMS
VILLIAGE OF COLD SPRING
PUTNAM COUNTY, NEW YORK

Date 04/02/2013	Work Order 5433.02	Drawing No. FIGURE 4	Rev 1
Scale 1" = 400'			



MATCH LINE FIGURE 4

MATCH LINE FIGURE 6



KEY MAP

SCALE: NTS

INUNDATION GROUPS

- A: { LOWER DAM SUNNY DAY BREACH
UPPER/LOWER DAM SDF
- B: { UPPER DAM SUNNY DAY BREACH
LOWER DAM SDF BREACH
- C: UPPER DAM SDF BREACH

NOTE

MAPPING BASED ON APRIL 2009 IMAGERY.

LEGEND

- INUNDATION GROUP A
- INUNDATION GROUP B
- INUNDATION GROUP C
- TRAVEL ACCESS IMPACTED
- MUNICIPAL BOUNDARY
- INUNDATION GROUP C IMPACTED STRUCTURE
- INUNDATION GROUPS A, B & C IMPACTED STRUCTURES
- ACCESS IMPACTED STRUCTURE

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C. Phone: (845) 534-5959
P.O. Box 37, 70 Pleasant Hill Road Fax: (845) 534-5999
Mountainville, NY 10953 www.tectonicengineering.com

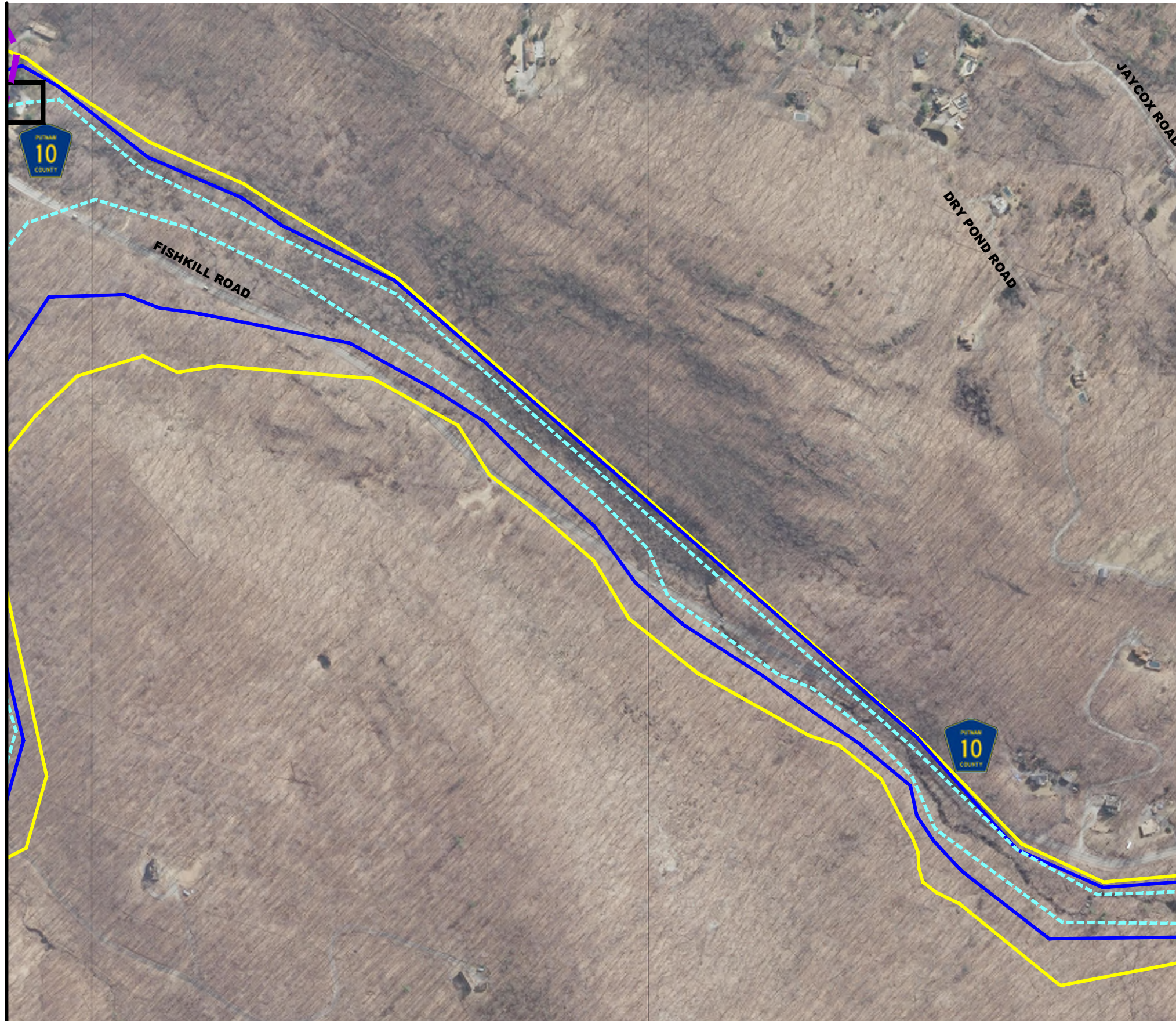
INUNDATION MAP

**COLD SPRING DAMS
VILLAGE OF COLD SPRING
PUTNAM COUNTY, NEW YORK**

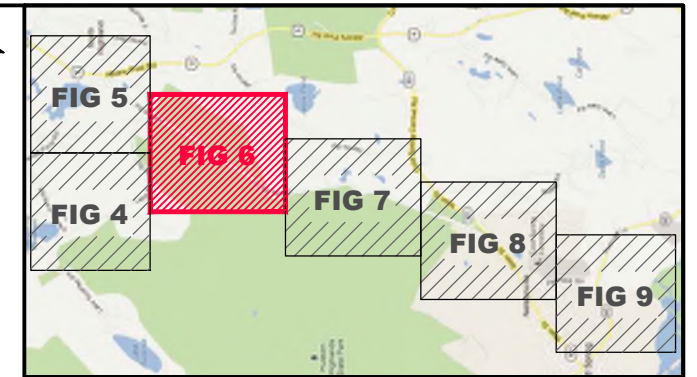
Date 04/02/2013	Work Order 5433.02	Drawing No. FIGURE 5	Rev 1
Scale 1" = 400'			



MATCH LINE FIGURE 5



MATCH LINE FIGURE 7



KEY MAP

SCALE: NTS

INUNDATION GROUPS

- A: { LOWER DAM SUNNY DAY BREACH
UPPER/LOWER DAM SDF
- B: { UPPER DAM SUNNY DAY BREACH
LOWER DAM SDF BREACH
- C: UPPER DAM SDF BREACH

NOTE

MAPPING BASED ON APRIL 2009 IMAGERY.

LEGEND

- INUNDATION GROUP A
- INUNDATION GROUP B
- INUNDATION GROUP C
- TRAVEL ACCESS IMPACTED
- MUNICIPAL BOUNDARY
- INUNDATION GROUP C IMPACTED STRUCTURE
- INUNDATION GROUPS A, B & C IMPACTED STRUCTURES
- ACCESS IMPACTED STRUCTURE

TECTONIC

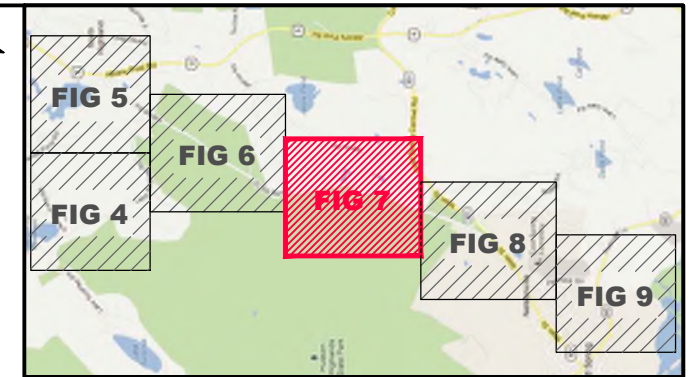
- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C. Phone: (845) 534-5959
P.O. Box 37, 70 Pleasant Hill Road Fax: (845) 534-5999
Mountainville, NY 10953 www.tectonicengineering.com

INUNDATION MAP

**COLD SPRING DAMS
VILLIAGE OF COLD SPRING
PUTNAM COUNTY, NEW YORK**

Date 04/02/2013	Work Order 5433.02	Drawing No. FIGURE 6	Rev 1
Scale 1" = 400'			



KEY MAP

SCALE: NTS

INUNDATION GROUPS

- A: { LOWER DAM SUNNY DAY BREACH
UPPER/LOWER DAM SDF
- B: { UPPER DAM SUNNY DAY BREACH
LOWER DAM SDF BREACH
- C: UPPER DAM SDF BREACH

NOTE

MAPPING BASED ON APRIL 2009 IMAGERY.

LEGEND

-  INUNDATION GROUP A
-  INUNDATION GROUP B
-  INUNDATION GROUP C
-  TRAVEL ACCESS IMPACTED
-  MUNICIPAL BOUNDARY
-  INUNDATION GROUP C IMPACTED STRUCTURE
-  INUNDATION GROUPS A, B & C IMPACTED STRUCTURES
-  ACCESS IMPACTED STRUCTURE

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

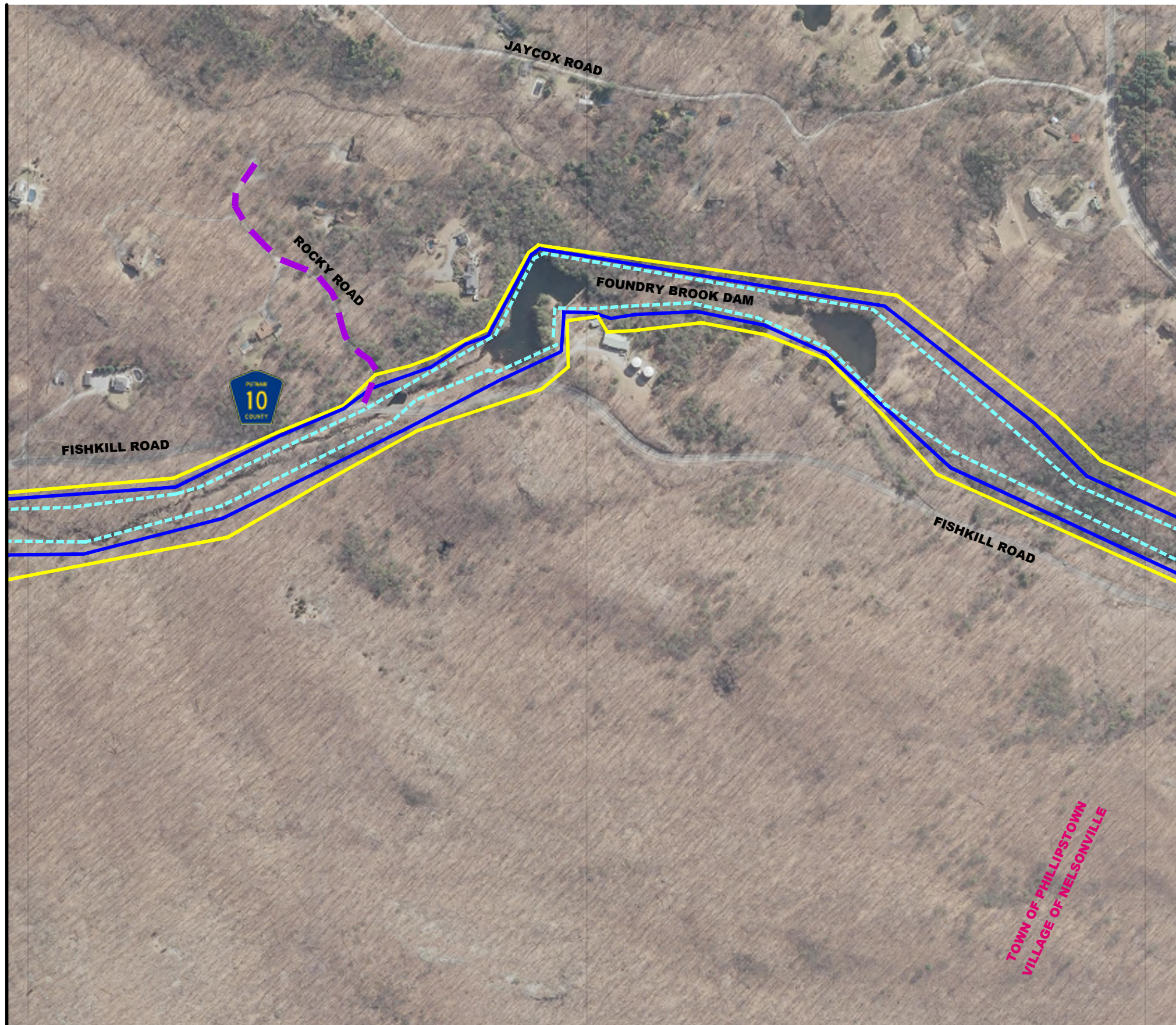
TECTONIC Engineering & Surveying Consultants P.C. Phone: (845) 534-5959
P.O. Box 37, 70 Pleasant Hill Road Fax: (845) 534-5999
Mountainville, NY 10953 www.tectonicengineering.com

INUNDATION MAP

**COLD SPRING DAMS
VILLIAGE OF COLD SPRING
PUTNAM COUNTY, NEW YORK**

Date 04/02/2013	Work Order 5433.02	Drawing No. FIGURE 7	Rev 1
Scale 1" = 400'			

MATCH LINE FIGURE 6

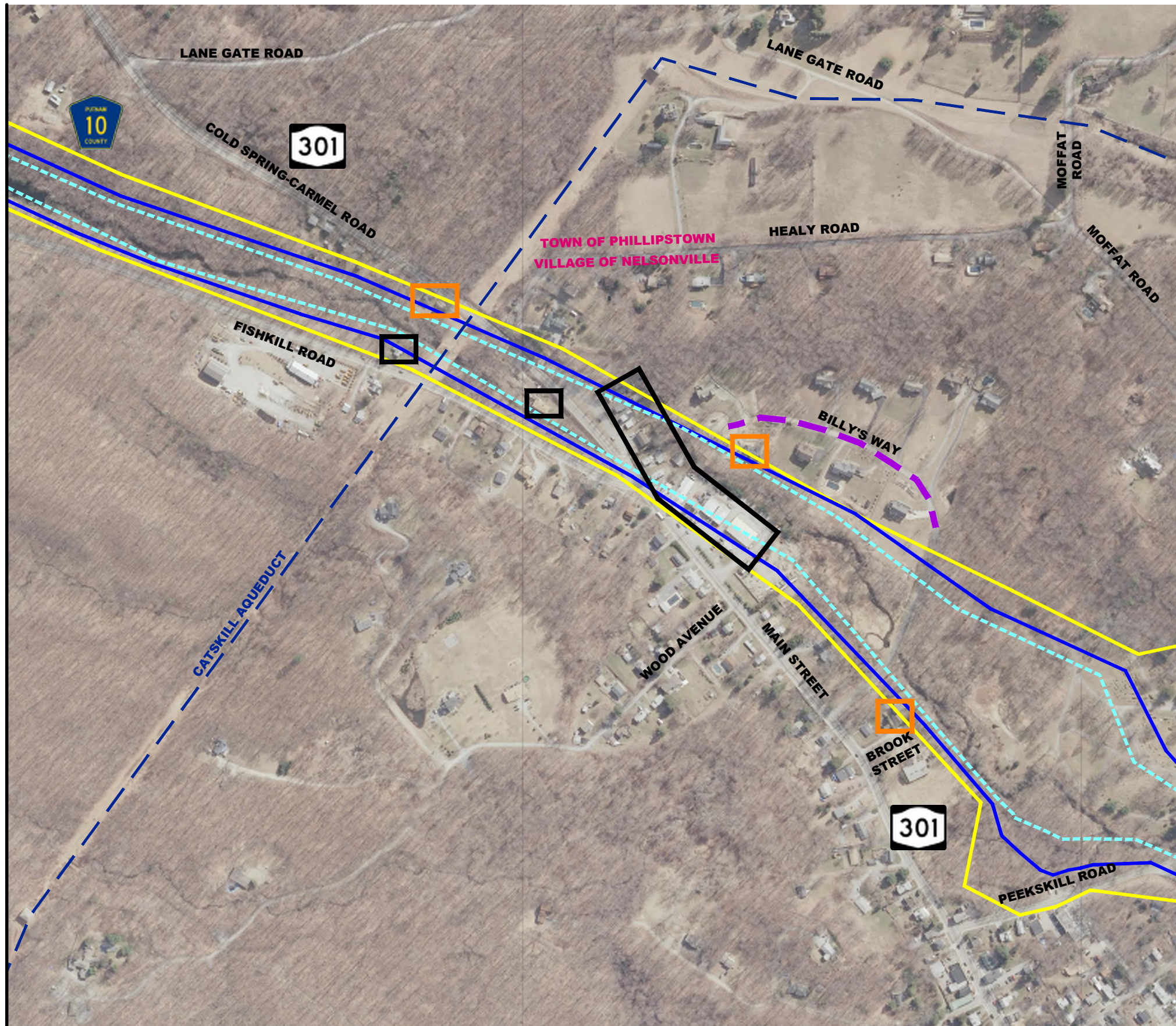


MATCH LINE FIGURE 8

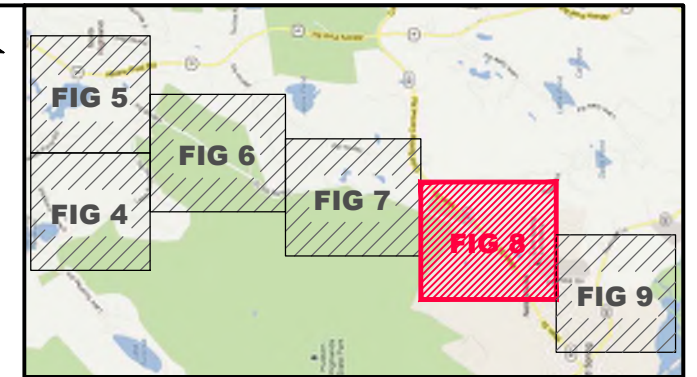
**TOWN OF PHILLIPSTOWN
VILLAGE OF NELSONVILLE**



MATCH LINE FIGURE 7



MATCH LINE FIGURE 9



KEY MAP

SCALE: NTS

INUNDATION GROUPS

- A: { LOWER DAM SUNNY DAY BREACH
UPPER/LOWER DAM SDF
- B: { UPPER DAM SUNNY DAY BREACH
LOWER DAM SDF BREACH
- C: UPPER DAM SDF BREACH

NOTE

MAPPING BASED ON APRIL 2009 IMAGERY.

LEGEND

- INUNDATION GROUP A
- INUNDATION GROUP B
- INUNDATION GROUP C
- TRAVEL ACCESS IMPACTED
- MUNICIPAL BOUNDARY
- INUNDATION GROUP C IMPACTED STRUCTURE
- INUNDATION GROUPS A, B & C IMPACTED STRUCTURES
- ACCESS IMPACTED STRUCTURE

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C. Phone: (845) 534-5959
P.O. Box 37, 70 Pleasant Hill Road Fax: (845) 534-5999
Mountainville, NY 10953 www.tectonicengineering.com

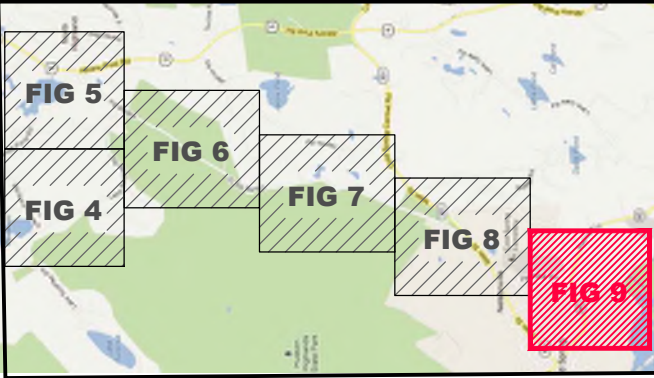
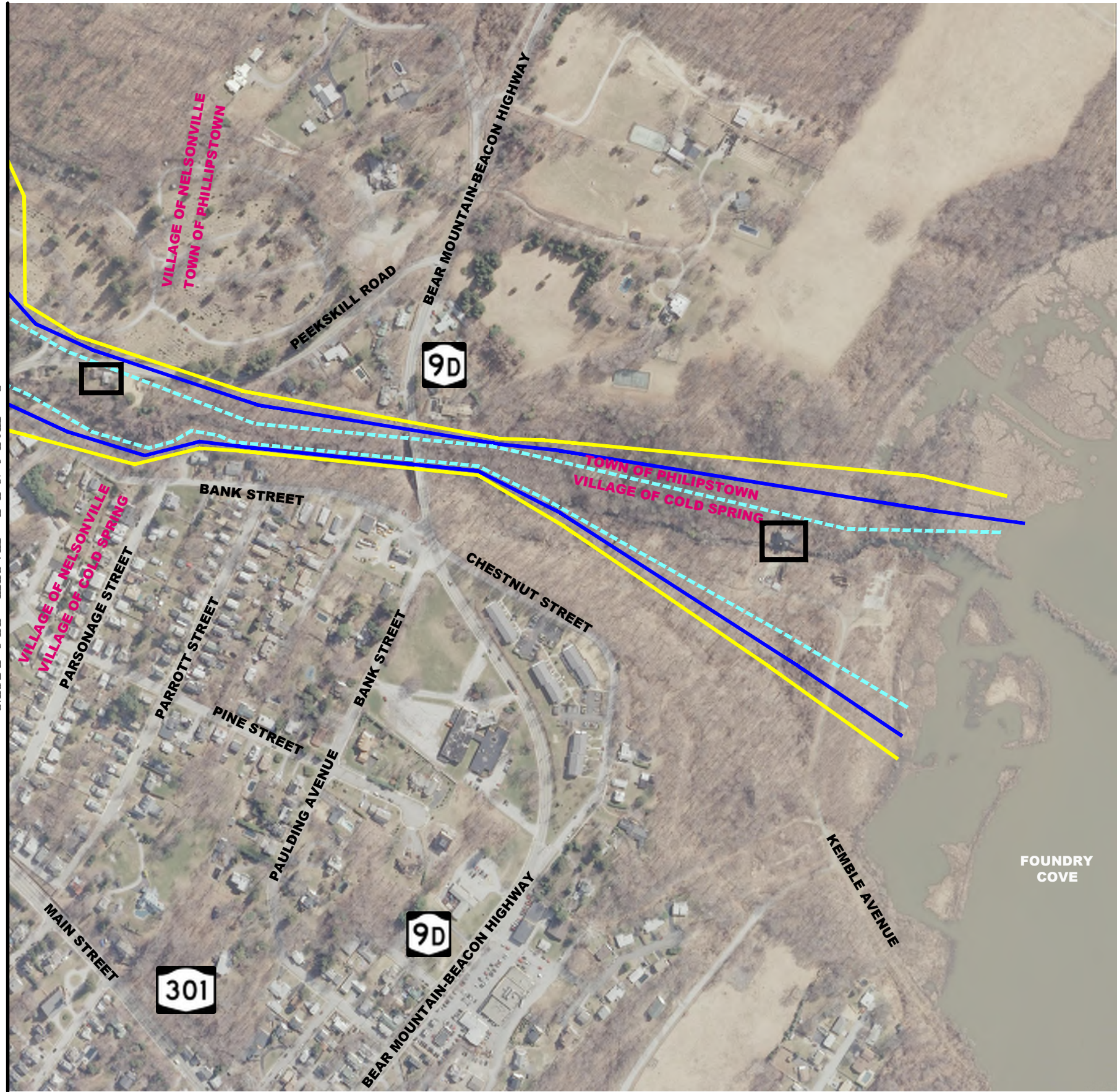
INUNDATION MAP

**COLD SPRING DAMS
VILLAGE OF COLD SPRING
PUTNAM COUNTY, NEW YORK**

Date 04/02/2013	Work Order 5433.02	Drawing No. FIGURE 8	Rev 1
Scale 1" = 400'			



MATCH LINE FIGURE 8



KEY MAP

SCALE: NTS

INUNDATION GROUPS

- A: { LOWER DAM SUNNY DAY BREACH
UPPER/LOWER DAM SDF
- B: { UPPER DAM SUNNY DAY BREACH
LOWER DAM SDF BREACH
- C: UPPER DAM SDF BREACH

NOTE

MAPPING BASED ON APRIL 2009 IMAGERY.

LEGEND

- INUNDATION GROUP A
- INUNDATION GROUP B
- INUNDATION GROUP C
- TRAVEL ACCESS IMPACTED
- MUNICIPAL BOUNDARY
- INUNDATION GROUP C IMPACTED STRUCTURE
- INUNDATION GROUPS A, B & C IMPACTED STRUCTURES
- ACCESS IMPACTED STRUCTURE

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C. Phone: (845) 534-5959
P.O. Box 37, 70 Pleasant Hill Road Fax: (845) 534-5999
Mountainville, NY 10953 www.tectonicengineering.com

INUNDATION MAP

**COLD SPRING DAMS
VILLIAGE OF COLD SPRING
PUTNAM COUNTY, NEW YORK**

Date 04/02/2013	Work Order 5433.02	Drawing No. FIGURE 9	Rev 1
Scale 1" = 400'			

ACRONYMS

EAP:	<u>E</u> mergency <u>A</u> ction <u>P</u> lan
EMO:	<u>E</u> mergency <u>M</u> anagement <u>O</u> ffice
EOC:	<u>E</u> mergency <u>O</u> perations <u>C</u> enter
FEMA:	<u>F</u> ederal <u>E</u> mergency <u>M</u> anagement <u>A</u> gency
FIRM:	<u>F</u> lood <u>I</u> nsurance <u>R</u> ate <u>M</u> ap
FIS:	<u>F</u> lood <u>I</u> nsurance <u>S</u> tudy
I&M:	<u>I</u> nspection & <u>M</u> aintenance
NYS EMO:	<u>N</u> ew <u>Y</u> ork <u>S</u> tate <u>E</u> mergency <u>M</u> anagement <u>O</u> ffice
NYSDEC-DSS:	<u>N</u> ew <u>Y</u> ork <u>S</u> tate <u>D</u> epartment of <u>E</u> nvironmental <u>C</u> ontrol – <u>D</u> am <u>S</u> afety <u>S</u> ection

APPENDIX A

APPENDIX A: PLANS FOR TRAINING, EXERCISING, UPDATING, AND POSTING

Training - Training of personnel involved in implementation of the EAP should be identified and conducted post Orientation Meeting in order to ensure that the appropriate parties are thoroughly familiar with all elements of the plan, the availability of equipment, and their responsibilities and duties under the plan.

Technically qualified personnel should be trained in problem detection and evaluation and appropriate remedial (emergency and non-emergency) measures. This training is essential for proper evaluation of developing situations at all levels of responsibility which, initially, is usually based upon onsite observations.

A sufficient number of people should be identified and trained to ensure adequate coverage at all times. A training plan will be included in the appendix to the EAP after the Orientation Meeting is held.

Exercising – The first step in exercising the EAP is in the coordination and consultation with state and local emergency management officials and other organizations when developing a comprehensive EAP exercise program. Their involvement will help perfect the close coordination necessary for a successful execution of emergency procedures during an actual emergency. The exercises will include participation by the dam owner and should include the affected state and local emergency management officials.

The extent of the exercise program should be appropriate for the magnitude of the potential consequences of dam failure, and the capabilities of emergency responders. The exercises should be discussed, evaluated and the findings and conclusions memorialized. The EAP should be revised to correct any deficiencies noted or to refine coordination of duties and the responsibilities of all parties involved. The exercises can range from simple to complex and from low to high realism. The extent of the exercise program should be appropriate to the downstream consequences of a dam failure and the capabilities of local emergency responders.

The five standard types of exercises include Orientation Meeting, Annual Test, Tabletop Exercise, Functional Exercise, and Full Scale Exercise.

Orientation Meeting – The Orientation Meeting is where the dam owner shall introduce the EAP to local officials and emergency responders, and provides those entities the opportunity to review and comment on the document and on their respective roles. The dam owner will revise the EAP based on these comments.

Annual Test – An Annual Test involves, at a minimum, the calling of the numbers provided in the Notification Flow Chart, and the subsequent updating of the EAP, as appropriate. The Annual Test may include the distribution of a specific test scenario with recipients mailing back response forms, to confirm that accurate information can be disseminated in a timely manner. The primary purpose of an annual test is to update on-site and off-site notification information, to keep it accurate. A secondary purpose is to remind all stakeholders to review the EAP.

Tabletop Exercise - A Tabletop Exercise has the following components and characteristics:

- Higher level exercise than an Annual Test.
- Involves various levels of personnel.
- Is held in an informal conference room environment.
- Low stress, no time constraints.
- Actions are taken and discussion is based on a described emergency situation, plus a series of messages to participants.
- Provides an opportunity to discuss the EAP and response procedures, and to resolve questions throughout the exercise.
- Allows for the practice of problem-solving for emergency situation.
- Participants practice a coordinated, effective response.

Functional Exercise - A Functional Exercise has the following components and characteristics:

- Involves various levels of personnel without full activation of field personnel.
- Simulates emergency operations center environment.
- Stressful, with time constraints.
- Simulates dam failure and response.
- Participants act out their roles.
- Tests both dam owner and agency responses, including coordination.

A tabletop or functional exercise should be held every 3-5 years, depending on a dam's significance and owner's and emergency managers' capabilities.

Full Scale Exercise - A Full Scale Exercise has the following components and characteristics:

- Interactive, stressful, with time constraints.
- Actual mobilization of personnel and resources.
- Adds a field component that interacts with a functional exercise through simulated messages.

- Tests deployment capabilities.

Updating - A regular review of the adequacy of the EAP should be conducted at intervals not to exceed one year, and should be coordinated with the Annual Test. The review should include the notification flow chart, flood inundation area, downstream development, the reservoir, and the EAP text. The review should determine whether any revisions to the current EAP are necessary.

If, as a result of the annual review, no revisions are necessary, a written statement to this effect should be provided to each recipient of the original EAP. The EAP should be updated promptly when changes are required. EAP personnel or telephone number changes should be recorded as they occur.

Posting of the Notification Flowchart - An up-to-date copy of the Notification Flowchart should be posted in prominent locations at each dam site and local emergency operation centers (essential for unattended dams). The flowchart should be posted at each phone and radio transmitter at the dam, powerhouse (if applicable), and at all other desirable locations. The locations of the posted flowcharts should be indicated in the EAP.

APPENDIX B

DAM POST-INCIDENT REPORT

6 NYCRR Part 673 requires Dam Owners to submit a written report to NYSDEC when either of the following incidents occurs at a Class C – High Hazard or a Class B – Intermediate Hazard dam:

- 1) Activation of the Emergency Action Plan; or
- 2) Flow through an erodible auxiliary spillway.

Submit the completed form within 5-days of the end of the incident to:

NYSDEC – Dam Safety Section
625 Broadway, 4th Floor
Albany, NY 12233-3504
Phone: 518-402-8185
Fax: 518-402-9029

NYS Dam ID #: _____

Date of Incident: ____/____/____

Dam Name: _____

Reservoir/Impoundment Name: _____

Location (County, Town/City/Village, Street, Latitude, Longitude): _____

Description of Incident and cause(s): _____

Start date, time of incident: ____/____/____ - ____ (AM) (PM)

Was the Emergency Action Plan activated? (Yes) (No) If so, when? ____/____/____ - ____ (AM) (PM)

Has the emergency ended? (YES) (NO) If so, when? ____/____/____ - ____ (AM) (PM)

Did flow pass through an erodible Auxiliary Spillway? (YES) (NO)

Duration of overflow: _____ Maximum depth of flow above spillway crest: _____

Spillway condition: _____

Immediate responses to Incident: _____

Long term responses to Incident: _____

Dam Owner Contact Information

Name: _____

Mailing Address: _____

Phone: _____

Fax: _____

Inspector:					Date:		Time:	
Observation	Response	Upstream Slope	Crest	Downstream Slope	Toe Area	Drop Outlet	Low-level outlet valve	Remarks
Normal (no deficiencies)								
Not inspected								
Dam breach	Red							
Uncontrollable Settlement, Heave or Erosion	Red							
Controllable Leakage	Orange							
New Spring or Piping	Orange							
Slump or Heave	Orange							
Sinkhole	Orange							
Spillway Obstruction	Yellow							
Unusual Cracking	Yellow							
Unusual Noise or Vibration	Yellow							
Unsubstantiated Bomb Threat	Yellow							
Civil Disorder	Yellow							
Aircraft Accident	Yellow							
Other								

Note: The response indicated is the minimum alert condition that should be implemented when the indicated condition is observed. When one or more conditions are noted simultaneously, it should be under the advisement of a qualified Engineer to upgrade the Alert Condition to the next level.

APPENDIX C

STANDARD DISTRIBUTION LETTER & RECEIPT

(Name of EAP Document Holder)
(Mailing Address)

Attention: (Name of EAP Holder)

**RE: EMERGENCY ACTION PLAN UPDATE
UPPER AND LOWER COLD SPRING DAMS
NYSDEC I.D. # 213-1004A & 213-1004B**

I acknowledge receipt of the Emergency Action Plan (EAP) for the Upper and Lower Cold Spring Dams. I have read and understand my role and responsibility in the EAP. This EAP will be maintained at the designated location for use in the event of a drill or actual emergency declaration.

Controlled Document Holder Name: _____

Signature: _____ Date: _____

Corporate Office

70 Pleasant Hill Road, PO Box 37 | Mountainville, NY 10953
845.534.5959 Tel | 845.534.5999 Fax

tectonicengineering.com
Equal Opportunity Employer

Name	Organization	Email
Kathleen Foley	Mayor, Village of Cold Spring	major@coldspringny.gov
Matt Kroog	Water Superintendent, Village of Cold Spring	vcswater@coldspringny.gov
John Van Tassel	Supervisor, Town of Philipstown	supervisor@philipstown.com
Chris Winward	Mayor, Village of Nelsonville	mayor@nelsonvillenyny.gov
Robert Downey Jr	Highway Foreman, Village of Cold Spring	vcshighway@coldspringny.gov
	Town of Philipstown Highway Department	highwaydepartment@philipstown.com
Robert Lipton	Putnam County Bureau of Emergency Services	robert.lipton@putnamcountyny.gov
Fred Pina	Putnam County Highway & Facilities Department	PutnamHighway@putnamcountyny.gov
	NYS DOT Hudson Valley Transportation Management Center	john.bassett@dot.ny.gov
	Village of Cold Spring Fire Department	coldspringfd@gmail.com
	North Highland Fire District	
Larry Burke	Commanding Officer, Village of Cold Spring Police	
Kevin McConville	Putnam County Sheriff's Department	info@putnamsheriff.com
Sgt Yvonne Richards	New York State Police Troop K	yvonne.richards@troopers.ny.gov
Gary Tuthill	NYS Division of Homeland Security & Emergency Services	Gary.Tuthill@dhses.ny.gov
John Carleton	NYS Emergency Management Office Planning Department	john.carleton@dhses.ny.gov
Nancy Furbush	National Weather Service	nancy.furbush@noaa.gov
Donald Canestrari	NYSDEC Dam Safety Section	donald.canestrari@dec.ny.gov

DAM EAP CONCURRENCE FORM:

We, the undersigned, on date indicated, have reviewed the requested support activity in the Emergency Action Plan for the Upper Cold Spring Dam - DEC ID #213-1004A, LOWER COLD SPRING DAM - DEC ID #213-1004B and FOUNDRY BROOK DAM - DEC ID# 213-0506. The plan conforms with existing recommended operating guidelines and existing municipal or county emergency operation plans.

Name	Title	Organization	Signature

PROMULGATION AND CONCURRENCE

I, the undersigned, on the date indicated, have reviewed the Emergency Action Plan (EAP) for the Upper Cold Spring Dam, State Dam ID# 213-1004A, Lower Cold Spring Dam, State Dam ID #213-1004B and Foundry Brook Dam, State Dam ID #213-0506. I have received the concurrence of the necessary emergency managers, who are listed below.

Dam Owner

Date

Name	Title	Organization

Our Story

For the past 30 years, Tectonic has delivered quality professional services in a timely and cost effective manner by pooling its talented staff into project teams that think, act, and perform as one integral unit. By carefully listening and collaborating with its clients, the firm is able to identify the key issues and assure stakeholder objectives are met in the final deliverables. Through innovating and adopting technological advances, the firm is able to generate unique solutions to improve our nation's deteriorating infrastructure and build safe sustainable communities.

As the world evolves, and its challenges grow more complex, Tectonic continues to innovate and provide the practical solutions and exceptional customer service its clients have trusted since its founding.